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AT

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CONTENTS

PAGE

No. 1. — The Birds of the Lake Umbagog Region of Maine. Part I. By William Brewster. June, 1924 . . . 1

No. 2. — The Birds of the Lake Umbagog Region of Maine. Part II. By William Brewster. February, 1925 . . 211

No. 3. — The Birds of the Lake Umbagog Region of Maine. Part III. By William Brewster. November, 1937 . 403

No. 4. — The Birds of the Lake Umbagog Region of Maine. Part IV. By Ludlow Griscom. February, 1938 . . 523

63,692

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VOL. LXVI. PART I.

THE BIRDS OF THE LAKE UMBAGOG REGION OF MAINE.

BY WILLIAM BREWSTER.

CAMBRIDGE, MASS., U. S. A.:
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JUNE, 1924.

REPORTS ON THE SCIENTIFIC RESULTS OF THE EXPEDITION TO THE EASTERN TROPICAL PACIFIC, IN CHARGE OF ALEXANDER AGASSIZ, BY THE U. S. FISH COMMISSION STEAMER "ALBATROSS," FROM OCTOBER, 1904, TO MARCH, 1905, LIEUTENANT COMMANDER L. M. GARRETT, U. S. N., COMMANDING, IN PREPARATION:—

R. P. BIGELOW. The Stomatopods.
O. CARLGREN. The Actinaria.
W. R. COE. The Nemerteans.
H. J. HANSEN. The Cirripeds.
W. E. HOYLE. The Cephalopods.
P. KRUMBACH. The Sagittae.
G. W. MÜLLER. The Ostracods.
MARY J. RATHBUN. The Crustacea Decapoda.
G. O. SARS. The Copepods.
H. R. SIMROTH. Pteropods, Heteropods.
TH. STUDER. The Alcyonaria.

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By William Brewster.

CONTENTS.

	PAGE
Preface	5
Introduction	6
Bethel to Upton	7
Upton to Errol	8
Lake Umbagog	9
Stub-Forests	17
Pine Point	19
Tyler Bog	24
Great Island	25
Floating Island	25
Collecting	26
Faunal Relations	28
Migration	29
Annotated List	33
Colymbus grisigena holboelli (Reinhardt). Holboell's Grebe	33
auritus Linné. Horned Grebe	37
Podilymbus podiceps (Linné). Pied-billed Grebe	41
Gavia immer immer (Brünnich). Loon	43
stellata (Pontoppidan). Red-throated Loon	53
Uria lomvia lomvia (Linné). Brünnich's Murre	54
Larus argentatus argentatus Pontoppidan. Herring Gull	55
delawarensis Ord. Ring-billed Gull	60
philadelphia (Ord). Bonaparte's Gull	61
Sterna hirundo Linné. Common Tern	62
paradisaea Brünnich. Arctic Tern	64
Chlidonias nigra surinamensis (Gmelin). Black Tern	66
Mergus merganser americanus Cassin. Goosander	67
serrator Linné. Red-breasted Merganser	80
Lophodytes cucullatus (Linné). Hooded Merganser	82
Anas boschas boschas Linné. Mallard	91
rubripes rubripes Brewster. Red-legged Black Duck	92
tristis Brewster. Black Duck	93
Mareca penelope (Linné). European Wigeon	113
americana (Gmelin). Baldpate	114
Nettion carolinense (Gmelin). Green-winged Teal	117

PAGE

Querquedula discors (Linné). Blue-winged Teal 118
Spatula clypeata (Linné). Shoveller 123
Dafila acuta tzitzihoa (Vieillot). Pintail 124
Lampronessa sponsa (Linné). Wood Duck 125
Nyroca americana (Eyton). Redhead 136
marila nearctica (Stejneger). Scaup Duck 137
affinis (Eyton). Lesser Scaup Duck 139
collaris (Donovan). Ring-necked Duck 140
Bucephala clangula americana (Bonaparte). Golden-eye . . . 142
albeola (Linné). Buffle-head 163
Clangula hyemalis (Linné). Old Squaw 167
Oidemia nigra americana Swainson. American Scoter . . . 169
grisea deglandi Bonaparte. White-winged Scoter . . 180
perspicillata (Linné). Surf Scoter 182
Oxyura jamaicensis (Gmelin). Ruddy Duck 184
Chen hyperboreus hyperboreus (Pallas). Lesser Snow Goose . . 185
caerulescens (Linné). Blue Goose 186
Branta canadensis canadensis (Linné). Canada Goose . . . 187
Botaurus lentiginosus (Montagu). Bittern 190
Ardea herodias herodias Linné. Great Blue Heron 194
Casmerodius albas egretta (Gmelin). Egret 203
Butorides virescens virescens (Linné). Green Heron . . . 203
Nycticorax nycticorax naevius (Boddaert). Black-crowned Night Heron 204
Rallus virginianus Linné. Virginia Rail 205
Porzana carolina (Linné). Carolina Rail 206
Fulica americana americana Gmelin. Coot 209

PREFACE.

The attention of ornithologists seems to have first been called to the Umbagog Region by Edward A. Samuels. After visiting it in the early 60s he mentions it not infrequently in his Birds of New England, published in 1867. Unfortunately he acquired only trifling and superficial knowledge of its varied and abundant bird-life, resulting, it would seem, merely from casual observation of such conspicuous birds as happened to be noticed during camping trips, undertaken chiefly for shooting wild-fowl and catching Trout. What he had to say of it in his book sufficed, however, to lead Harry B. Bailey to infer, a few years later, that the region might repay further and more careful investigation. Acting on this impression Mr. Bailey went in May, 1870, to Upton where, shortly afterward, he was joined at the Lake House by Ruthven Deane. When these two enterprising young collectors returned from this trip, it was with spoils which excited no little wonder and admiration among friends possessing kindred tastes and living for the most part, in or near Cambridge — then a head-centre of ornithological zeal and activity. For the specimens included skins of birds represented in but few private collections of that period, and sets of eggs of exceeding rarity or interest. After it had thus been made known that treasures so priceless might be obtained by journeying no further than to Lake Umbagog, various collectors sought them there almost ceaselessly in the spring or early summer of many a subsequent year, usually staying at the Lake House and limiting their field-operations chiefly to its immediate neighborhood, although all-day excursions were occasionally made to the northern end of the Lake, or up Cambridge River, or perhaps up the Magalloway as far as the Lower Settlement. Such expeditions increased in frequency and extent of range as the country in and about Upton became more and more thoroughly ransacked; but because of the exceeding difficulty and discomfort of skinning birds and blowing eggs in forest depths infested by myriads of mosquitoes, midges, and black-flies, even the briefest camping trips were seldom undertaken except in late summer or early autumn, when these grievous pests were no longer to be feared.

The ever-varying character and scope of this long-continued and, at the first, essentially pioneer, field-work, the respective parts taken in it by so many widely-known collectors, and the extent to which it absorbed my own attention for a considerable number of years, may

best be shown, perhaps, by narrating, as briefly as possible, some of my personal experience with it.

The text relates, unless otherwise stated, exclusively to a period beginning with May, 1871 and terminating with June, 1909. This should be borne in mind to prevent misconception of such temporal expressions as "now," "at the present time," "during earlier years" etc.; for almost all these refer only to the general interval of time just indicated.

INTRODUCTION.

The southernmost and westernmost of the Rangeley Lakes is unknown to have ever borne any name other than the pleasing Indian one, Umbagog. It lies partly in western Maine, still more largely in northeastern New Hampshire, upwards of thirty miles to the northward of Mt. Washington, and some sixteen hundred feet above sea-level at Portland, Maine — distant about one hundred and fifty miles in an air-line to the southeast. Mountainous country, covered for the most part with unbroken and pathless forest, surrounds it closely on every side, while the nearest railway is almost thirty miles away. Being thus comparatively isolated it has been little troubled by pleasure-seeking and comfort-loving tourists — or at least was not before these days of ever-multiplying automobiles.

The Umbagog Region of my book includes several hundred square miles of this hinter land, whose boundaries are too ill-defined by nature or imperfectly known to me to be very precisely stated. In general terms it may be said to stretch southward from the Lake to Grafton Notch; eastward to C Pond and the Narrows of Richardson Lake; northward along the Magalloway River Valley to Aziscohos Falls and beyond; westward to Dixville Notch. These arbitrary limits have been adopted chiefly because they circumscribe woods and waters with which ornithologists are more or less familiar. There is, indeed, no reason to suppose that what has thus been set apart can differ essentially as regards either physical or faunal characteristics from much of the remoter or less accessible forest country surrounding it on almost every side. In Grafton Notch, however, there is an obvious and abrupt line of demarcation between two unlike faunal regions, that immediately to the north of this mountain-pass being everywhere pure Canadian, whereas that to the south partakes somewhat of Transitional characteristics. Elsewhere, no such coincidence of natural with arbitrary boundaries has been traced.

Bethel to Upton.

The stage-road from Bethel to Upton — by means of which one may most quickly and easily reach Lake Umbagog from the southward — is nearly thirty miles in length. It runs for the greater part of the way through open, farming country, down the left bank of the Androscoggin River. After passing Newry it takes advantage of the comparatively gradual and easy ascent to Grafton Notch afforded by the valley of Bear River, which it follows quite to its source. The farms in this valley are not very productive, but they include some fertile intervales which yield good crops of hay. For the next three miles the road runs nearly straight through unbroken and essentially primitive forest, abounding in fine old beeches, rock maples, red maples, and yellow birches, but long since despoiled of its larger spruces and balsams. On the left Speckled Mountain rises to an elevation above sea-level of 4,250 feet, on the right Saddleback to some 4,080 feet.

Soon after passing the source of Bear River in the upper part of Grafton Notch the stage-road comes to another water-shed which slopes northward and is drained by the Swift Cambridge, at first a tiny rivulet, next a broad laughing brook flowing over gravelly shallows, and finally a small river which, after mingling its clear, glancing waters with the more turbid and sluggish ones of the Dead Cambridge, empties into Lake Umbagog. For a distance of several miles from the headwaters of this little stream its course is closely followed by the road over an open and nearly level plateau. Beyond this flat the road leaves the River on its right and enters a broken, partly-wooded tract, ascends a succession of steep hills, approaching Upton along a stretch of straight and level road. Here it divides, the right hand fork descending a steep hill to the old Lake House where it terminates, the other branch inclining to the westward and leading to Lakeside and to Errol.

Umbagog as seen from Upton Hill looks more like a broad and winding river than a lake, for its greatest width is but little more than a mile, and its total length upwards of twelve miles, while it stretches towards every point of the compass. It is immediately bordered for the most part by low or only slightly-elevated land, which extends back for distances varying from a few hundred yards to a mile or more, before giving place to the hills and mountains that rise in every direction, tier above tier, as far as the eye can reach. In a few places, however, outlying spurs or ridges slope steeply down to the very edge of the water. Everywhere, save at the southern extremity of the

Lake and just below the Narrows, where there are scattered farms, the shores are clothed in heavy forest which flows backward and upward in billowy waves of verdure over all the neighboring hills and mountains. From Upton Hill this forest seems unbroken and of boundless extent as, indeed, it well may, for it covers hundreds of square miles where the only open spaces are those formed by lakes or rivers, and it stretches northward, practically without interruption, save by these and similarly natural openings, to the borders of Canada and beyond, a distance of more than fifty miles. It forms a rich and appropriate setting for the shining Lake.

Upton to Errol.

The road leading from Upton to Errol first descends a long hill, from which most of the wider reaches and larger coves of Umbagog may be clearly traced. At the foot of the hill it crosses the state-line into Cambridge, New Hampshire, where it draws nearer and nearer to the Lake, and finally skirts its shores rather closely, affording several wide and impressive views of its south arm, and many attractive glimpses of blue water seen between or just above the intervening trees. Before the end of July, the road is broadly belted on either hand by flowering herbaceous plants more or less common, it is true, to the surrounding region, and perhaps even to the greater part of New England, but here found in rather unusual numbers and perfection and most effectively shown. Vistas bordered by brilliantly-coloured flowers are always attractive and when, as here, there are inner ranks of vigorous shrubs and trees to form a solid background of blended foliage, largely evergreen, the effect is doubly charming. Something like it is often attempted by the makers of cultivated parks and gardens, but their handiwork is too apt to bear the marks of conscious effort, and in this and other ways it usually falls short of the success which Nature achieves so easily in dealing with many waste or neglected places.

The prevailing colours of the roadside flowers in July are white and pinks or reds of various shades; but from the middle of August to the close of September, when the golden-rods and asters are in fullest bloom, yellow and purple or bluish purple are the predominating hues. At the latter season the roadsides are more brilliantly coloured than at any other, especially if, as often happens, the foliage of the maples, birches, and other deciduous trees reaches the height of its autumnal

glory before the wild flowers are cut down and blackened by the first killing frosts.

But almost no part of northern New England, however rugged and remote, is now beyond reach of the swift touring-cars. Of late they have traversed the Errol road with increasing frequency, powdering its wayside flowers with dust, disturbing the quiet of its wooded reaches with the muffled roar of their throbbing machinery, and leaving everywhere the reek of their fetid breath. Perhaps the day is not far distant [1] when they will have replaced — at least in summer — the time-honored stages, the picturesque "tote-teams" and, indeed, most of the vehicles now drawn by horses. To many of us who have long known the region and loved it especially because of its remoteness and seclusion, this invasion of its highways is scarcely less deplorable than is the ever-increasing havoc wrought in its forests by the lumbermen.

Lake Umbagog.

Some lakes impress one as dominating their immediate surroundings, others as dominated by these. Umbagog belongs in the latter class. It is too narrow, tortuous, shallow, and muddy to be in itself especially admirable, yet like many a precious stone, has beauty and charm due to the effectiveness of its perfect setting amid the majestic mountains and virgin forests that surround it closely on every hand. In some respects it is not unlike a sluggish, gently-curving river, here expanded, there contracted. North and south, east and west, it stretches, trending, indeed, towards every point of the compass, as it winds about among encircling hills and ridges, following everywhere what must have been lines of least resistance. Although twelve miles in length, it is nowhere much more than a mile in width, and there are places where the opposite shores approach one another to within less than a quarter of a mile. The coves which indent them are almost innumerable and of varying shapes and sizes. Some have but a few acres of open water, perhaps concealed behind wooded points or islands and connected with the Lake by devious passages, easily overlooked. Others are broad bays, rivalling in extent the central reaches through which steamer-channels run, and are often mistaken for these by persons unfamiliar with the region. It is chiefly to the number and character of such coves and bays that Umbagog owes its claim to be regarded as a lake. Besides enhancing its general interest and at-

[1] Written in 1907.

tractiveness, they add rather surprisingly to its shore-line which is said to exceed seventy miles in total length. This may be an exaggeration of the truth, but assuredly there are few if any canoemen, however strong and enduring, who would undertake to paddle around the entire Lake in the course of a single day, keeping everywhere close to the margin of the water.

Excepting at high stages of water, few of the coves are navigable for steam- or motor-boats, and many lesser or inconspicuous ones remain at all times seldom visited, save occasionally by Duck-hunters, Muskrat-trappers, and Pickerel-fishermen. Partly for this reason, also because of the wild and picturesque character of their environment, they impress one with a sense of seclusion and remoteness, very soothing to tired human nerves, being less disturbed than central reaches of the Lake that are more frequented by large birds and mammals. Eagles and Ospreys are wont to hover over them, looking for fish; Ducks and Herons to swim or wade in their reedy shallows. Foxes come at morning and evening to trot along their grassy margins, searching for Meadow Mice, and Deer visit them by night to feed on the roots of yellow water-lilies which flourish wherever the bottom is soft and muddy. There are, indeed, almost no furred or feathered creatures living or roaming anywhere near the Lake which may not be seen at the right hour and season in one or another of its coves.

When the first days of early spring are magically transforming the woods and fields of Massachusetts, little or no obvious change from mid-winter conditions is taking place in the region about Lake Umbagog, for in March the snow is sure to lie deeper there, and the cold is likely to be intenser, than at any other time of year. Even at the very close of April there may be practically no bare ground showing, and the Lake itself often remains encased in ice until after the first of May, and sometimes as late as the fifteenth. In April, both snow and ice freeze hard at night, but soften and waste under the fervent rays of the mid-day sun, and leads of open water, frequented by Muskrats and by the earlier-arriving Ducks, appear here and there along the margin of sunny shores and coves, perhaps before the heavily-loaded "tote-teams" have ceased to cross the thick ice that still covers most of the Lake. The first bird harbingers of spring are the Crows, which are likely to arrive about the middle of March and to be followed, a little later, by Robins, Bluebirds, two or three kinds of Blackbirds, Song Sparrows, a few Fox Sparrows, and several kinds of water-fowl. These and other signs of approaching summer are not sufficiently marked or impressive, however, to prepare one for the final trans-

formation scene which, when it comes, early in May, is apt to be astonishingly sudden and complete. Often in the course of a few oppressively warm days, usually accompanied by strong southerly winds, the entire Lake opens and all the snow, save that in the deepest drifts and in the denser shade of evergreen forests, speedily vanishes, while many of the deciduous trees and shrubs begin to show a tinge of green foliage, and hosts of migratory birds of many different species arrive all together from the south. Thus the long, lingering spring of southern New England is commonly replaced here by a season so very brief that it represents but little more than an abrupt leap from late winter into early summer. It rarely begins earlier than the 5th, or later than the 15th, of May, and sometimes it is practically over by the 25th of that month, although ordinarily the woods are not in full leaf nor all the birds back in their summer haunts, much before the 1st of June.

My spring visits to the Lake have often included the latter part and sometimes almost the whole, of the interesting season just mentioned. Many passages relating to it occur in my journal; as some of these will perhaps give a better understanding of it, I shall venture to draw from them rather freely as follows: —

1876.— I find the season remarkably backward, not a leaf having started as yet, while there is still a good deal of snow in the woods, especially in hollows and cedar-swamps. Despite these conditions, nearly all the birds seem to have arrived. I saw to-day (26 May) Cape May, Black and Yellow, Black-throated Green, Blackburnian, Yellow-rumped, and Wilson's Black-capped Warblers, besides several other species. Most of them were silent, although a few sang a little.

A decided change in the weather, the day (27 May) being very warm with west wind. There was an appreciable increase in the number of birds, both in species and individuals, and nearly all sang freely. Tennessee Warblers and Scarlet Tanagers were seen for the first time.

A second warm day (28 May), the vegetation continuing to advance rapidly. Numbers of birds arrived, among others the Black-poll, Chestnut-sided and Blackburnian Warblers, the Red-eyed Vireo, the Purple Martin, the Cedar Waxwing and the Whippoorwill, the Olive-backed and Hermit Thrushes.

It rained heavily last night. The forenoon to-day (29 May) was cloudy and sultry, the afternoon clear and cool. Noted a further increase in the number of birds, and the evident fact that most of them are now settling themselves for the breeding season. The Blackburnian Warblers have retired to the tree-tops and each male keeps to his own domain and defends it against all invaders. The Philadelphia Vireo, Mourning Warbler, and Solitary Sandpiper were seen for the first time. There was a general arrival of Cedar-birds, Rose-breasted Grosbeaks, Bay-breasted Warblers, Yellow-bellied Fly-

catchers and Olive-sided Flycatchers. The foliage of the birches has become quite dense.

A sudden change in the weather, the night clear and almost frosty. Early in the morning (30 May) the woods were silent, but as the sun rose higher and the day became warmer many birds began to be seen and heard. Most of the Warblers were collected in flocks in warm sunny nooks.

Clear and cold with north wind. The woods are now (31 May) in full leaf. Most of the Warblers are now building their nests.

1879.— A warm day (25 May), cloudy and damp for the most part, with occasional gleams of sunshine and desultory showers. There was a well-marked wave of migration, and the woods resounded all day with the songs of birds of various kinds.

A cloudless day (26 May), but a very wild one for May, the air piercingly cold and a furious gale blowing from the northwest, swaying the slender trees, roaring through the evergreen forests, and tearing up the surface of the Lake. The Warblers were in flocks all day, in sheltered places under the lee of the woods, and on sunny hillsides. In a small fir I saw five male Blackburnians together, three of them on one branch, their orange throats glowing like coals among the dark foliage. A few dejected Hummingbirds were sitting in the sun among dead twigs and fallen tree-tops.

Although the day (27 May) was clear and rather warm, the Warblers were still in flocks keeping near the ground, in sheltered places. In a single fallen tree-top I counted fifteen, among them three male Blackburnians.

1880.— The woods and thickets about the Lake are (16 May) nearly as bare as in winter. Nevertheless I came upon a large flock of birds in a sheltered swamp. It contained numbers of Blackburnian, Black and Yellow, Bay-breasted, Chestnut-sided, and Black-throated Green Warblers, a Swainson's and a Wilson's Thrush, a Solitary Vireo, a Parula Warbler, a few Ruby-crowned Kinglets.

The Warblers continue (19 May) to keep in flocks composed of various species, and averaging about twenty members each.

1881.— Most of the summer birds were in full song (12 May). I heard dozens of Swainson's Thrushes, a Black and Yellow Warbler, and numbers of Blackburnians, Yellow-rumped, Black-throated Green, and Parula Warblers, northern Water Thrushes, Redstarts, Winter Wrens, and Yellow-bellied Woodpeckers.

Morning (13 May) cloudy with light rain; afternoon clear. Birds abundant and singing freely. The only new ones noted were Least and Great-crested Flycatchers.

Clear and cool with northwest wind. To my list of birds I added to-day (14 May) the Black-throated Blue Warbler, the Olive-sided Flycatcher, (of which I heard no less than five representatives), and the Nighthawk.

1897.— Only about two weeks ago the temperature at Lakeside fell one night to zero Fahrenheit, I am told. In the course of a rather long walk this evening (11 May), I heard many of the earlier-arriving birds, such as Robins,

Hermit Thrushes, White-throated Sparrows, and Woodcock, but only one of the later ones, namely a Whippoorwill.

Early morning (12 May) calm and slightly foggy. Remainder of the day cloudy and rainy with east wind. The only Warblers met with during a short walk which I took just after breakfast, were an Usnea, two Black and Yellows, and a few Yellow-rumps. In the afternoon, however, the woods were fairly alive with them; on the shore of the Lake near the old Lake House, they began appearing about two o'clock, and afterwards were exceedingly numerous in thickets bordering on the water. I wonder if this is the same flight that we left at Bethel yesterday and why so few of its members reached the Lake before noon to-day; also, if the hordes which appeared in the afternoon came all the way from Bethel by daylight or only from some of the high ridges lying a mile or two to the southward of the Lake, where they may have alighted early this morning.

Heavy rain-storm lasting all day (13 May). The woods continue to swarm with Warblers and other small migrants.

Clear and warm. The woods bordering the south shore of the Lake were filled (14 May) with birds scattered about singly and also in small mixed flocks. Among them are great numbers of Blackburnian Warblers. The Veery, Wilson's Blackcap Warbler, and the Olive-sided Flycatcher were noted for the first time this year.

Apparently the great flight of Warblers which reached the Lake on the 12th, has become dispersed through the neighboring forest or has passed on northward, while no succeeding bird-wave of any magnitude has since arrived here. At least, small birds appeared to be very scarce about the Lake to-day (17 May), although the weather was perfect.

Apparently the second great bird-wave of the season arrived last night or early this morning (20 May), for there were very many small birds everywhere in the woods to-day. Among them I noted the Cape May, the Bay-breasted, the Black-throated Blue, and the Canadian Warblers.

The forest was literally swarming with birds to-day (21 May), especially near the shores of the Lake. The Black-poll Warbler, the Scarlet Tanager, and the Red-eyed Vireo were noted for the first time this year.

1909.— I have never known the season to be so backward at this date (2 June). The ice went out of Lake Umbagog on May 14th. The country, everywhere, from Bethel to the Lake was alive with birds. They were much more numerous than they ever are in summer. Warblers were particularly numerous.

Although winter sets in rather early at Lake Umbagog, its oncoming is less abrupt and better heralded than that of summer. For there is always a well-defined, and sometimes a rather protracted, autumn — most delightful of all seasons here as well as elsewhere. Just when this begins or ends would be difficult to determine, for it is throughout a season of transition highly variable, moreover, with respect to its

duration in different years. Signs of its presence or at least of its near approach, are not wanting before the end of August, but typical summer weather — calm, serene, and often uncomfortably warm — usually continues well into September and sometimes quite to its close, while I have known the first killing frosts to be delayed until the 20th of October, although ordinarily they come at least a week or two earlier than that and occasionally not long after the middle of September. During the very first week of the latter month a few of the maples growing in low, wet land about the shores of the Lake are likely to turn scarlet, and there may be yellowing birches, also, in some of the dry hillside pastures. But the forest that covers most of the upland country with a billowy sea of foliage seldom displays much brilliant color before the 15th of September, and occasionally remains as uniformly green as it was in mid-summer up to the 20th or even the 25th. The general change usually begins before the latter date, however, and it often proceeds very rapidly. The autumn colouring is ordinarily most vivid and widespread sometime between September 25th and October 5th. After it has reached its height, it rarely lasts more than two or three days, unless the weather remains calm and fine, for the fully-ripened leaves are easily detached by wind or rain. Most of them fall before October 10th and by the 15th, at the latest, the deciduous forests are almost perfectly bare.

After the "fall of the leaf," the mowing fields about the southern end of the Lake may remain green and smiling for weeks in succession, with hawkweed and red clover still in bloom and black crickets creaking among the grass whenever the sun shines brightly. The Lake, too, may continue to look much as it does in summer, at least when not ruffled by strong winds. But the forest presents a radically changed and rather grim aspect, with the "pointed firs" and spruces standing erect and still like sentinels on watch among the deciduous trees which, stripped of every last remnant of verdure, reveal details of outline and structure hitherto concealed or obscured.

Snow does not often, if ever, come to stay before November, but it occasionally whitens the ground in September, and sometimes covers it to a considerable depth for brief periods in October.

Late in October the temperature is likely to fall, every now and then, to 25° or perhaps 20° Fahrenheit at night, and occasionally it may drop to 10° or even 8° before the 25th of the month, freezing the surface of the ground as hard as a flint and covering the shallow coves of the Lake with ice an inch or more in thickness; yet the days following even such exceptionally cold nights are often delightfully warm.

The Lake is rarely troubled by fogs in spring and summer, but they are distressingly frequent and persistent in autumn, especially during the latter part of September and the first half of October, when they occur with almost unfailing regularity whenever clear, calm, frosty nights succeed bright, rather warm days. Most forest-haunting creatures are noticeably depressed by fogs. I suspect that the smaller woodland birds sometimes remain asleep or at least inactive on their perches during their continuance, for at Pine Point I have repeatedly looked and listened for them in vain, until the fog began to disperse when they would appear suddenly and in large numbers, close about our camp. It is possible, of course, that they may have been astir much earlier than this further back in the forest, but whenever I traversed it on very foggy autumn mornings I found it everywhere silent and apparently deserted. Moreover, the birds seen on these occasions on the Point acted at first as if they had not been long awake and were only just beginning to seek their breakfasts. When there was no morning fog or when it was but thin or transitory, they were always to be seen or heard about camp soon after daybreak. Many of them spent the night there, for the woods on the Point not only attracted them by day, but also provided them with safe and congenial sleeping quarters.

What I have just said is intended to apply chiefly to such forest-loving birds as are locally resident about the Lake, at least in early autumn. Many of these, as Chickadees, Nuthatches, Golden-crested Kinglets, Brown Creepers, Winter Wrens, and Woodpeckers of several species, were accustomed to frequent Pine Point in September, roaming the woods in flocks which usually contained migrating Warblers of several species. The Warblers varied greatly in numbers from day to day, for they were continually arriving from the northward and departing to the southward. They travelled, of course, chiefly by night, when one might hear them passing overhead, hour after hour, in seemingly unbroken procession. By listening attentively to their calls whenever I happened to be awake, I came at length to the conclusion that they seldom if ever alighted except about daybreak, when dozens or even scores of them often pitched down into the woods on the Point in quick succession. This I dimly saw on a few occasions, but ordinarily the chirping of the birds as they shot down from the aerial pathway which they had followed was the only evidence vouchsafed me of their descent. If the morning dawned clear, they were sure to come about our camp by sunrise or a little later. If they found the woods enveloped in fog, they sometimes imitated the ex-

ample of the Titmice, Nuthatches, etc., by remaining silent and unseen until the sun appeared, but as a rule the presence of fog seemed to inspire them with exceeding energy and restlessness, which they manifested by darting to and fro through the tree-tops, chirping excitedly and rarely pausing anywhere to rest or feed. After behaving in this manner for fifteen or twenty minutes, they were likely to leave the Point altogether and to troop off southward over the Lake in loose straggling order, probably taking advantage of the cover afforded by the fog to add a few more miles to the journey accomplished during the preceding night.

For many of these migrants the Lake is a veritable death-trap during foggy mornings in autumn. Rarely have I crossed it anywhere at this season, just after the fog had cleared and before the wind had risen, without finding one or more dead birds floating on its surface. Evidently one and all of them had perished by drowning, but why, I kept asking myself, should sound, vigorous birds of any kind fall into the Lake and be unable to extricate themselves again, when the weather was comparatively warm and perfectly calm. Obviously the fog had something to do with it, for they were never found in the water on mornings which had been clear at daybreak. This led me to believe for a time that they must get lost in the fog and fly about in circles, until they become exhausted and drop into the water. But after I had repeatedly seen or heard them crossing the widest stretches of the Lake through thick fog, keeping, apparently, to an almost perfectly-straight southward course, I had to abandon this theory. A much more satisfactory explanation was finally suggested by an experience which I had at Pine Point early one foggy but cloudless morning in September. As I was descending a slope from our camp to the shore of the Lake, soon after daybreak, it struck me that if I had not known that a broad sheet of water lay just before and below me I might have supposed that I was looking off over a great abyss filled with billowy fog. Even when I reached the shore and halted at its very edge I realized that I could not have made sure by the evidence of my eyes alone that they rested on anything more tangible than swirling wreaths of mist. This at least was the case as long as the water remained undisturbed, but the merest dimples on its surface made by rising minnows or by the gyrating gambols of "lucky-bugs" were plainly visible, sometimes at considerable distances. For the mist wreaths were too diaphanous and interrupted to really intercept one's view of anything immediately beyond or under them. But in the soft, diffused light of early dawn their colouring was nearly the same

as that of the water, and they were so perfectly reflected in its glassy surface that as I bent forward and gazed down intently, I seemed to see them slowly drifting and eddying far beneath me. Indeed it was only by lowering my face to within a foot or two of the water that I could make it out distinctly. Nor were the conditions exceptional on this occasion, for I found that they were likely to be duplicated about the same hour on any foggy morning. If I went well out into the Lake and allowed my canoe to lie motionless until the ripples made by it had subsided, it was not difficult to imagine myself floating not on water but in *space*, with oceans of fog beneath, as well as around and above me. When I dwelt on this thought, it soon became so nearly conviction as to be positively disturbing. That small, migrating birds descending at the end of a nocturnal journey through thick fog to the surface of the Lake must be subject to a similar delusion seems almost certain. They are looking, of course, for woods, or thickets, or open fields, all of which, as they know by experience, may be seen through the densest fog at a distance of fully twenty yards. But with fog-banks overlying wide stretches of perfectly-calm water they are not likely to ever have more than a single experience, and that a fatal one, for it is improbable that they can notice the water in time to avoid coming in sudden contact with its surface. That they usually strike it with such force as to be not only completely immersed but also so stunned that they can make little or no subsequent effort to extricate themselves, is indicated by the fact that they are always found floating face downward. Were they to struggle much, at least some of them would be likely to turn over before dying.

Stub-Forests.— Within the memory of persons living not long since in Upton, the shores of Lake Umbagog were bordered nearly everywhere by large and vigorous coniferous trees of which very many were old-growth white pines.

Most of these and of the larger spruces and arbor vitaes had been cut and rafted away by the lumbermen before my first visit to the Lake in 1871. Its shores were then verdant with evergreen foliage in places, but for the most part fringed with dead or dying trees, chiefly red maples, black ashes, canoe birches, and balsam firs, which the water had killed or seriously injured not long after its level had been raised a number of feet by the dam built across the Androscoggin River at Errol in 1852.[1] At the outlet and inlets of the Lake, in some of its larger coves and elsewhere where the shores were sufficiently low

[1] The original dam was built that year. It was carried out by the water in 1887 and replaced, a little lower down the river, by the present dam which was completed in 1888.

and flat to be subject to prolonged inundation, these stubs, as they were called, stood by hundreds or even thousands in grim and bristling array. Most of them were without bark and weathered to a soft stone-grey or greyish white colour. Many had lost all their lateral branches and some were already far advanced in decay. In their trunks Nuthatches and Woodpeckers had drilled innumerable holes, only the more recent of which were occupied by the birds which had excavated them, most of the others having passed into the possession of White-bellied or "Stub" Swallows. There were also Wood Ducks, Whistlers, Goosanders, Hooded Mergansers, Bronzed Grackles, Bluebirds, Crested Flycatchers and even Kingbirds, nesting in natural cavities and hollows or in abandoned and perhaps accidentally enlarged holes made by Flickers or by Pileated Woodpeckers. Brown Creepers, too, were much given to haunting the stubs, where they built their nests under large scales of semidetached bark. In short these forests of ancient and crumbling trees fairly teemed at the right season with varied and interesting bird-life. The Swallows and Grackles were especially abundant. At the mouth of Cambridge River and about the outlet of the Lake, where they bred in colonies, I have seen them rise and circle in swarms when disturbed by the report of a gun. The Woodpeckers, although scarcely less numerous, were more scattered and hence somewhat less conspicuous. The Ducks were least conspicuous of all because habitually too wary to often show themselves about their nests, unless when startled from them.

Those were indeed halcyon days for the ornithologists who visited Lake Umbagog in late May or early June, and who knew how to work the stub-forests systematically and intelligently for rare bird-nests. One might then find — and take without let or hindrance, for the game-laws were little regarded and seldom or never enforced — eggs of five or six species of Woodpeckers and of almost as many different kinds of Ducks, besides those of the Brown Creeper, the Canada and the White-breasted Nuthatch, the Bronzed Grackle, the White-bellied Swallow and the Kingbird, with perhaps, occasionally, a set laid by the locally rare Crested Flycatcher or by the Barred Owl. This statement should not, of course, be taken to imply that the eggs of all these species could be obtained by any one collector in a single season. Some of the birds were far from numerous and it was not always easy to find nests of even the commoner kinds among thousands of stubs, almost every other one of which was literally riddled with holes. All these could not well be examined, and long experience in this particular kind of field-work often failed to enable its possessor to distinguish

certainly between such as would repay investigation and such as might safely be passed by. Indeed he was sure to waste much valuable time in climbing to promising looking but untenanted cavities, and equally so to commit, every now and then, the still graver mistake of neglecting others of unpromising appearance which, as he might afterwards learn to his sorrow, had contained rare or coveted eggs; or, again he might find, upon breaking into and thereby ruining a nest from which a bird had been seen to fly, that he was either too early or too late for a full set of fresh eggs. These and similar difficulties and disappointments only added, of course, to the pleasure and interest of a day spent about the shores of Lake Umbagog, looking for the eggs of stub-nesting birds.

For upwards of twenty years after I first saw the stub-forests about the shores of Lake Umbagog, they continued to be among its most characteristic and in some respects, also, its most attractive, features. But they could not last indefinitely. One after another the lifeless trees, weakened by decay, by the attacks of wood-boring insects and by the loosening effects of water under their roots, tottered and fell, sometimes during violent gales, but perhaps oftener — strange as may seem the fact — when the weather was nearly or quite calm. I have noticed that whenever dead trees fall in calm weather it is usually during or just after a prolonged rain which, of course, soaks into the trunks and branches, adding materially to their weight. At the outlet of the Lake very many stubs were removed by the lumbermen upwards of twenty years ago, because they impeded the passage of the logs in spring, and about the same time many of the drier and sounder ones in the coves near Upton were cut by the country people for fuel. Thus the disintegrating forces of nature, somewhat aided by the hand of man, have done their work, until by now the stubs are nearly gone and the shores of the Lake perhaps as generally and uniformly clothed with living vegetation as they were before Errol Dam was built. But the verdure is not the same as then, for most of the pines, spruces, and arbor vitaes have disappeared and their places have been taken very largely by deciduous trees and shrubs.

Pine Point.— Of the many bold headlands which serve so admirably to diversify the shores of Lake Umbagog that known as Pine Point has most attracted and interested me. It is a wooded promontory upwards of a quarter of a mile in length, forming the western extremity of a wedge-shaped tract of wilderness which separates the north arm from the more central portion of the Lake. Just across

the comparatively narrow reach (nowhere more than half a mile in width) on which it fronts, lie the marshes about the outlet and Moose Point. Its nearness to these famous shooting grounds had something to do with my choice of the Point for a camping ground, when in 1892 I took a lease of it, and built a log-cabin, not far from the sheltered cove that indents its southern shore. I was influenced still more perhaps by the charm of its exceeding beauty and picturesqueness, and by knowledge of the fact that it was an exceptionally favorable place for studying the habits and migratory movements of many forest-haunting birds. Chief among its aesthetic attractions were the wide and impressive views it afforded, especially from the boulder-strewn shore at its western end, of very much of the Lake and of almost innumerable forest-clad ridges and mountains rising tier above tier and group beyond group in every direction, as far as the eye could reach. Among the higher and more distant elevations, often obscured by clouds or haze, but plainly visible whenever the air was clear, one might see towards the southeast Speckled and Saddleback Mountains — separated by Grafton Notch; to the southwest the loftier summits of the White Mountains — including Mount Washington and Mount Adams; to the westward some of the mountains lying beyond the Connecticut River in northeastern Vermont; to the northwest Mount Aziscohos and Mount Dustin — between which the Magalloway River flows.

At the time of which I am now writing such reaches of the Lake as were visible from Pine Point had been but little marred by man. In late autumn, after most of the sportsmen and fishermen had departed and the steamer had ceased to run, there were often no obvious signs of his presence there for days in succession, when it was delightful to contemplate the wilderness of woods and waters and perhaps to foster the pleasing, if selfish, delusion that we had and might keep it, wholly to ourselves.

The aspect of all this lake and mountain scenery was forever changing, not only gradually with the slow onward march of the seasons, but more or less abruptly from day to day or even hour to hour, with the ever-varying conditions of light, of wind, of clouds and of weather. All these changes could be observed and studied with little trouble or discomfort at Pine Point, where they often absorbed our attention. Nowhere else have I watched to such advantage and with so much pleasure the rising and the setting of the sun and moon; the lighting of the stars; the gathering and dispersal of fogs; the oncoming of violent storms; the advent of the first winter snows.

To the southward of the camp the land sloped steeply toward the Lake and was shaded chiefly by old-growth trees of various kinds, among which were tall white pines. Just to the eastward of these was a picturesque little cove having an attractive outlook over the Lake and bold rocky shores densely wooded with spruce, balsam, and arbor vitae. As it was perfectly sheltered from all winds excepting those that blew directly into it from the south, it formed a snug and convenient harbor for canoes and rowing boats, of which we had a number more or less constantly in use. We had also a large float on which supplies could be landed directly from the steamer, and a sloop-rigged house-boat forty feet in length. The latter craft was taken out only occasionally, sometimes for brief sails in strong winds, more rarely for excursions — lasting two or three days perhaps — to distant parts of the Lake. During a period somewhat later than that here referred to, I repeatedly lived in this boat with several companions, for weeks in succession, finding her a comfortable and indeed delightful floating home — especially at the height of the mosquito and black-fly season.

The fact that our camping ground was not in sight of the Lake did not strike me as a disadvantage. Indeed I preferred it so for these reasons: — (1) I was unwilling to mar in any way the natural beauty of the Point as seen from the water; (2) I did not wish to gaze at or be gazed at by people in passing boats; (3) as an artist-friend once said to me "it is better to have to walk to your views," for if constantly before one's eyes they are likely to lose in interest or impressiveness; and (4) I thought it desirable to keep the shyer birds that frequented the shores of the Point and its encircling waters ignorant as far as possible of our presence in their neighbourhood. That at least the first and the last named of these reasons were sound I never doubted in after years, when it was a constant source of pleasure to regard, from the Lake, the swelling and unbroken front of what seemed to be a wholly unspoiled and uninhabited forest, and of interest as well as pleasure, to watch through the foliage that screened the camp, Loons, Goosanders, Grebes, and other water-fowl swimming close in shore, and Eagles, Fish Hawks, Great Blue Herons, and Kingfishers hovering over the water or perched in the trees that overhung it. Although the wood-frequenting creatures must have been more or less cognizant of our presence, few of them seemed much disturbed by it. Porcupines, Rabbits, and Ruffed Grouse rambled through our very door-yard, and its herbaceous vegetation was cropped close by Deer who usually visited it by night, although on one occasion when I was

absent, a yearling buck entered it in broad daylight and was shot by a guide who happened to be sitting at the time in an arm-chair just within the camp. Beneath its floor lived a colony of Skunks. Hairy and Three-toed Woodpeckers dug holes in its outer walls in search of grubs, and the big scarlet-crested Pileated Woodpeckers were often seen or heard within a few rods of it. Saucy Red Squirrels came numerously and boldly by day, and Flying Squirrels more sparingly and timorously by night, to scamper over its flat roof. Confiding Chipmunks entered it freely to take food from our hands, and White-footed Mice dwelt permanently in its walls. Throughout the hours of darkness one might hear Great-horned Owls and Barred Owls hooting, Acadian Owls whistling or saw-whetting, and Great Blue Herons squawking, in its immediate neighbourhood. In short the human life and activity of which it formed the centre evidently interfered but little with the wild life by which it was surrounded. It is not likely that these conditions would have continued long had shooting been freely indulged in on the Point. During the time I held possession of it, a gun was rarely discharged there, at least with my knowledge and consent.

If the month were August or September and the night warm and calm, the low, eruptive croaking of Wood Frogs and the halting, dry-voiced soliloquies of Pickering's Hylas would be certain to come every now and then, from the depths of the woods, while on many such a night, especially if the stars — or better still the moon — were shining brightly, there was scarce ever a full minute when the faint lisping or chirping calls uttered by Warblers and other small wood-frequenting birds, passing southward on migration, failed to reach one's ears from overhead.

Of the sounds coming from the direction of the Lake, the most frequent were the swash and rustle of low-breaking waves; the rhythmic lapping of less troubled waters on rock-bound shores; the plash of leaping fish and diving Muskrats; the surprisingly loud and far-reaching noises made by wild-fowl thrashing the water with their wings; the plaintive, long-drawn calls and weird, quavering laughter of solitary Loons — decidedly the most thrilling and delightful of all the voices of the northern wilderness; the croaking of Goosanders and of Golden-eyes; and the loud vibrant quacking of Black Ducks.

When the air was perfectly calm, vocal sounds made by wading and swimming birds feeding by night in the marshes across the Lake could sometimes be heard faintly, but distinctly, at Pine Point. Among these were likely to be the loud harsh *haink* of the Great Blue Heron;

the hoarse *quawk* of the Night Heron; the squealing cries of Wood Ducks; the mellow calling of sad-voiced Plovers and Sandpipers of several kinds.

There were several nocturnal sounds of whose precise origin I remained long ignorant, or at least in doubt. One of these was a clear far-reaching whistled call, sometimes agreeably subdued and liquid, but ordinarily too loud and querulous to be wholly pleasing. It reminded me of the *queep* of the Great-crested Flycatcher, but there were conclusive reasons why it could not be that. I heard it frequently and sometimes almost incessantly, whenever there was a heavy south-bound flight of Warblers passing overhead, mingling with their lisping, chirping calls, but far louder than any of them and audible, I thought, at distances exceeding half a mile when the air was still. Evidently the birds that produced it were often very numerously represented at the Lake, yet for a time I heard it only at night. At length some birds which had been making it high in air alighted at daybreak, one morning, in a thicket of evergreens close to my tent, where they begun uttering certain notes which are characteristic of the Hermit Thrush alone. Nevertheless the mystery was not wholly solved by this experience for few, if any, Hermit Thrushes leave the Umbagog Region before the middle of September, whereas the night-call was heard sometimes as early as the last week in August; most frequently during the first half of September; not rarely as late as the middle of October. During the earlier part of this period there was, however, a rather heavy flight of south-bound Wilson's Thrushes and, as I now know definitely (thanks chiefly to another daybreak observation resulting in evidence similar to that just described and made at Concord, Massachusetts, in August, 1907), these birds have a nocturnal call indistinguishable, at least to my ears, from that of the Hermit Thrush. As far as I have been able to ascertain, they use it only when flying southward by night or just after alighting at the end of a migratory flight in the twilight of early morning. The Hermit sometimes utters it in broad daylight even at the height of his breeding season. If, as there are some reasons for believing, Swainson's Thrush also shares in the possession of this interesting and almost exclusively nocturnal call, the frequency with which it is heard at Lake Umbagog during the entire period covered by the successive and more or less overlapping southward migrations of the three kinds of Thrushes above named, will no longer be difficult to explain.

Some of the vocal sounds made by Owls of various kinds gave me especial and more or less lasting trouble and perplexity. One that we

used to hear only in summer and autumn, oftenest in the evening twilight, but sometimes all night long, was a strident, peevish cry coming, at short, regular intervals from the forest or from the stubs on the borders of the Lake. At times it suggested the plaint of a hungry house-cat, at others the scream of a Blue Jay, but it was never closely like either of these. As I finally ascertained, by shooting a bird that had just uttered it, it is the characteristic, if not only, call of young Great Horned Owls for the first three or four months after they leave the nest and begin to shift for themselves.

In October, 1893 and September, 1896 our camping ground was repeatedly visited at night by an unseen bird, of whose identity I was then and for some years later hopelessly in doubt. For all of the utterances by which he proclaimed his presence were wholly unfamiliar to me and also to my two guides, although both men had spent no small part of their lives in this northern wilderness. Sometimes he hooted very hurriedly in singularly subdued and dove-like tones, but much oftener gave a stentorian yell, repeated every ten or fifteen seconds for several minutes in succession, and loud enough to have been heard a mile or more away. Once when it came without warning from a large balsam very near the tents in which the guides and I were just dropping off to sleep, it startled us exceedingly, bringing every man of us instantly to his feet. It varied considerably in quality, being at times like the *honk* of a Canada Goose — only much louder; at others more like the flight-call of the Great Blue Heron; at still others not unlike the snarl of an angry cat. Twice or thrice we heard also a short, full whistle which we thought came from an Owl, but no clue was obtained during either of these autumns; several years later equally unusual and not altogether dissimilar sounds were uttered very near me at Concord, Massachusetts, by a bird which I have good reason to believe must have been a Great Horned Owl.

Tyler Bog.— Lying about half a mile distant from the old Lake House, the Tyler Bog furnishes — if on a somewhat limited scale — an excellent example of a primitive type of flat, semiopen country, not uncommon in remote parts of northern New England and still more prevalent further to the northward.

The Bog is about one hundred and fifty yards in width where the road crosses it. Just how far it extends in the other two directions (north and south), one cannot see from the road, and I do not certainly know, but it is said to exceed a mile in length. The Tyler Bog was frequented by Canada Lynxes and by herds of Woodland Caribou, not so very many years ago. It still harbors most of the land mam-

mals which continue to inhabit the surrounding region, and it is an especially favored haunt of the Varying Hare. Among its most characteristic summer birds are the Swainson's Thrush, Winter Wren, Canada Nuthatch, Rusty Blackbird, Olive-sided Flycatcher, and Yellow-billed Flycatcher; while Canada Jays, Pileated Woodpeckers, Arctic and Banded-backed Three-toed Woodpeckers, and Spruce Grouse, occur in it at every time of year.

Great Island.— By far the largest island in the Lake is that known as Great Island. It lies a little to the southward of the Narrows and is perhaps half a mile in length by a quarter of a mile in breadth. On June 11, 1897, I wrote in my journal: —

> The woods on Great Island are among the most beautiful and interesting that I have ever seen in this region. No lumbering has been done for over thirty years, and strange to say they are perfectly free from windfalls and almost equally so from scattered fallen trees, while even ancient, crumbling logs are scarce. The ground nearly everywhere is smooth, firm, and without holes or other inequalities of surface. There are but few rocks and little or no undergrowth save yew which, near the shore of the Lake, forms a broad continuous belt extending around the whole Island. Further back the land rises in gentle slopes to the centre of the Island which is elevated fifty feet or more above the Lake and nearly level over a large area, forming a plateau in which is a swamp or bog covered with stunted spruces and occupying twenty or more acres of the middle portion. Elsewhere the entire Island is heavily wooded with fine old timber, many of the trees, especially the spruces, hemlocks and yellow birches, being of impressive size. We found one yellow birch which had a girth of 13 feet 6 inches a foot above the ground and tapers but little for the next thirty feet upward. Its top, however, is missing and the trunk, although alive, is not sound.

Floating Island.— On June 7, 1897, I visited what appears to be a floating island at least one hundred acres in extent, situated in a natural meadow that extends back into the forest for a mile or more from the north side of the Androscoggin River, not far above Errol Dam and some four miles from the outlet of the Lake. In summer and autumn one may reach the head of this meadow in a canoe by following a shallow, muddy creek that winds through it from end to end. In spring it is flooded almost everywhere by back water from the River.

It is an immense raft of vegetation, literally floating on water everywhere six or eight feet in depth, and supporting the roots as well as the stems of not only thickets of large, vigorous-looking alders, but also of hundreds of short, stunted, scraggy but living larches hung with blackish Usnea. These trees, varying in height from six or eight to

fifteen or twenty feet, are scattered about irregularly, singly or in clusters. Over most of the bog, however, there is nothing taller than such shrubs as *Kalmia glauca*, *Andromeda polifolia*, and Rhodora. The last named is not abundant, but the other two grow in profusion and to a perfection that I have never before seen equalled. All three were in full bloom to-day, the Kalmia making the finest show and covering spaces of many square rods in extent with solid masses of rose-purple flowers. Under and among these shrubs grow fine white-fringed orchids and thousands of *Caltha palustris* (the latter only just coming into bloom), besides other plants.

The whole island literally swarms with Swamp Sparrows. There were also two male and three or four female Red-winged Blackbirds, two Maryland Yellow-throats, one Song Sparrow and two Savanna Sparrows, singing in a bare space covered with orange-brown moss, besides a Bittern which pumped at intervals, all the forenoon.

Collecting.

The game-laws were not much regarded at the Lake thirty or forty years ago. Deer and Moose were "crusted" in winter and hunted with jack-lights in summer. Partridges were shot on their drumming logs in spring and young Ducks killed in summer, as soon as they became large enough to eat, whether they could use their wings or not. It was openly maintained by the guides and native hunters generally that they had a right to take game and fish for their own use and that of their families whenever and wherever they could, regardless of the law. They acted up to this primitive belief on all occasions and for many years, with perfect impunity. Nor did they object to outsiders following the same principle, although illegal killing for the market was not approved by them. Our collecting operations excited some adverse comment at first, besides very general wonder and curiosity, but they were never seriously interfered with by any one. Mr. Horatio R. Godwin, the landlord of Lake House, was too intelligent and broad-minded to misunderstand them. He had much influence among his neighbors, and as it was exerted in our favor our work soon ceased to be regarded other than with friendly interest and sympathy, which naturally made it doubly pleasant. Even the energetic and efficient game-warden, Mr. Monroe Wormell of Bethel, whose name was for some years a terror to every game-poacher throughout the state, never made us any trouble, although he often

came to Upton and was perfectly aware of what we were doing there. Indeed I frequently talked with him about it. He held — and wisely, I think — that technical infractions of the law, if committed for some obviously necessary or worthy purpose, might often be ignored with advantage rather than detriment to its general usefulness and efficacy.

From the Stone brothers I learned much of interest concerning their shooting experiences when they were living together on the farm near the Narrows. This must have been between about 1830 and 1848 or 1849, although the exact limits of the period are not specified in my notes. The region was then practically unknown to city sportsmen, and the native hunters had the game pretty much to themselves. Most of them were too sparing of ammunition to expend it on anything of less size or value than a Moose, a Caribou, a Bear, or an Otter, but the Stones were exceptions to this rule, for they were especially devoted to the pursuit of water-fowl. These they hunted systematically and very successfully, sometimes by methods which, although at that time practised elsewhere and generally regarded as legitimate, are now everywhere forbidden by law and justly reprobated by all true sportsmen. Thus they had a huge gun mounted on a swivel and used chiefly in brush-stands erected at various places along the Lake shores where Ducks and Geese congregated to feed. It was heavily charged and, when fired into a compact flock of birds, often did great execution. The Ducks and Geese obtained in this and other ways were killed not only for their flesh but also for their feathers, which were prized for filling those once ubiquitous, but now almost obsolete abominations of New England farm-houses — the old time feather-beds. A favorite resort for water-birds of every kind was about Great Island. Here the Canada Geese came in the evening twilight to feed in the reedy shallows through the night, returning before sunrise the next morning to the north arm, where they rested and slept all day, floating well out from shore in the open water, secure from danger. They appeared regularly and in great numbers, in both spring and autumn, spending weeks at a time in the Lake, but never remaining there to breed. There were innumerable Ducks, especially in autumn when solid beds or rafts of them, covering the surface of the water over spaces acres in extent, might be seen in many of the coves. Goosanders, Hooded Mergansers, Whistlers and other species given to obtaining their food chiefly by diving were the most numerously represented. Black Ducks were much less abundant. The Stones agreed in assuring me that it was unusual to find more than three or four hundred of them

collected in any one place. I have seen nearly if not quite as many at Moose Point in the course of a single evening, but Canada Geese had almost ceased to alight in the Lake before I began to visit it.

Joseph Stone who lived for more than thirty years at Umbagog says that Sheldrake, Whistlers, Mergansers, and other Ducks came to the Lake in thousands. He has seen ten acres of solid masses of Ducks. A favorite feeding-ground of both Geese and Ducks was about Great Island.

Mr. Simeon Frost tells me that he came to Upton in 1840. There was then only a spotted trail through the woods from Brown's in Grafton. There were two or three houses on Upton Hill, the lowest near where Steve Morse now lives. He came to assist in Abbott's Mill, and marrying Enoch Abbott's daughter (sister of William Abbott of the Umbagog House, then the only house here), built the Lake House in 1859. At that time Moose, Bears, Deer and other large game were abundant in the adjoining woods. He has repeatedly seen Moose on the meadows below the Lake House. Sheldrake then used to fish in the rapids below the Dam. In windy weather he has seen thousands of Ducks packed in the first stretch of river below the elm tree. Ruffed Grouse were ten times more numerous than they are now. Wild Pigeons darkened the heavens. Canada Geese visited the Lake in both spring and fall in immense flocks, staying several weeks. Trout could be caught anywhere in the Lake or rivers in spring and fall by hundreds.

The Moose lasted only about ten years or until 1850. He attributes their disappearance to the building of Middle and Errol Dams, when there was frequent blasting of heavy charges. They were never slaughtered for their hides here, being only killed in limited numbers for food.

Faunal Relations.

The bird-fauna of the region about Lake Umbagog is so essentially, and indeed almost purely CANADIAN that a simple statement to that effect would perhaps express all that need be said on the subject. It is true that my list of birds will be found to include several more or less typical ALLEGHANIAN forms, such as the Wood Thrush, the Brown Thrasher, the Warbling Vireo, the Field Sparrow, the Towhee, the Baltimore Oriole, and the Green Heron. But as these, without exception, are only rare or occasional visitors, and as most of them breed regularly — if sparingly and locally — only thirty or forty

miles to the southward, their occasional appearance at the Lake has no particular significance nor even any especial interest.

Migration.

About Lake Umbagog one may find at almost any time of year, except late autumn, winter, and early spring, a greater number and variety of birds than are likely to be met with elsewhere in northern New England. Nor is this surprising, for the Umbagog Region is so comparatively secluded and undisturbed, and so very diversified, that it affords congenial haunts and abundant food for birds of widely differing tastes and habits. Indeed there are few species ranging thus far north or south along the Atlantic Slope, and not strictly confined to the sea-coast, which do not occur at one or another season near this beautiful Lake. Water-fowl are attracted by its shallow, winding reaches and connecting rivers; waders, by its bordering mud-flats and grassy meadows; birds that affect the haunts of man, by the farming country at its southern end; woodland birds of many different kinds, by the forests that encompass it on almost every hand, stretching thence northward into Canada. Most primitive forests of large extent, lying thus far north, are said to be ill-supplied with bird-life, but it fairly teems in those about Lake Umbagog as far back as I have ever had occasion to penetrate them. In summer their inner recesses are perhaps less favored in this respect than are their confines and sunny openings — especially near the Lake — but in spring and autumn when the migrations are under way, Warblers, Vireos, Thrushes, and other wood-frequenting birds are often distributed very evenly and numerously over the entire country, occurring quite as abundantly in the heart of the forest as anywhere else. The Lake evidently lies in an avian pathway much travelled by migrating birds if, indeed, it be not the principal route taken by those which pass through the interior of New England to and from breeding-grounds further north. It is followed regularly, not only by hordes of passerine birds, but also by a surprising number of water-fowl and waders. I have known days in autumn when there must have been nearly, if not quite, one thousand Scoters swimming in the Lake at once, or when the mud-flats and marshes at its outlet were so thronged with Golden, Black-breasted, and Semipalmated Plover, Greater and Lesser Yellow-legs, Pectoral Sandpipers, Dunlin, and Least and Semipalmated Sand-pipers, that they rose in clouds like swarming flies whenever a gun was fired. Indeed I have had better success in shooting limicolines, the

so-called shore-birds, in these marshes than anywhere on Cape Cod. They occur numerously, however, only in late summer or early autumn, and then only when their feeding-grounds are in exceptionally good condition. Their regular visits and occasional abundance at these seasons seem at first thought not a little remarkable, for one cannot help wondering how so many of them find their way to this little Lake, lying seventy or more miles inland, buried among dense forests and towering mountains. It is not probable that they reach it directly from the New England coast. At least I have never known them to come from that direction, although it has been my frequent experience to see them approaching from the northward, usually not long after daybreak, and hundreds or perhaps *thousands* of feet above the Lake. Some descend to the water or marshes after circling a few times, others keep on southward without alighting. Thus it would appear that very many of these wading and swimming birds visit the Lake, not because it has for them attractions superior to those of the sea-coast, but simply because it affords a convenient halting place where they may break, perhaps for the last time, a prolonged overland journey. All this applies of course only to their autumnal movements. Their spring flights at the Lake are apparently comparatively light and infrequent, and I have little definite knowledge of them.

There are good reasons for believing that the bulk of the birds just mentioned came from Hudson Bay. Most of them occur there numerously in late summer or early autumn, and very many breed there also. When the shortening days and increasing cold warn them that the hour for departure is at hand, such of them as are accustomed to spend the winter along the New England seaboard or to visit it before pushing further south, have their choice of at least two widely different routes, each of which, no doubt, has attractions peculiarly its own. Thus they may go through Hudson Strait and thence around the eastern shores of Labrador, Newfoundland, and Nova Scotia, following the sea-coast all the way — an obvious advantage for birds of maritime tastes and habits — or they may take a much shorter path leading overland in a southeasterly direction from James Bay, the extreme southern extension of Hudson Bay. Should they select the former route and avoid the deeper indentations of the coast by striking boldly across more or less wide stretches of ocean, from one headland to the next, the total distance they must cover is not less than twenty-five hundred miles; nor can it be brought much within two thousand miles, if they pass inside Newfoundland, through the Gulf of St. Lawrence, and over the narrow neck of land at the head of the Bay

of Fundy — as many south-bound wading and swimming birds are known to do. In comparison with this circuitous journey, the overland flight above referred to is a mere bagatelle, for the distance in a straight line from James Bay to Portland, Maine, is less than seven hundred miles. If such a line be drawn on the map, it will be found to pass very near, if not actually through, Lake Umbagog. Most of the country which it traverses is uninhabited (or but sparsely settled) and well supplied with lakes and rivers. Thus there are doubtless many bodies of water besides Umbagog where migrating waders and wildfowl that follow this route are accustomed to alight for rest and food. Although I incline to believe that the majority of them come all the way from Hudson Bay in a practically direct course, there are probably tributary lines of migration which join the main one at different points, and where the St. Lawrence River is crossed, there may be a very considerable accession of birds derived from the westward through the chain of Great Lakes. The longer one reflects on all these facts and probabilities, the less surprising it seems that such birds as Plover, Yellow-legs, Dunlin, Sanderling, Scoters, Old Squaws, and Horned Grebes, may be found almost as frequently and numerously in autumn at Lake Umbagog as along the coast of Massachusetts.

I have sometimes wondered if the seemingly exceptional abundance of migrating passerine birds of various kinds at Lake Umbagog may not be more apparent than real, and due, at least in part, to their evident tendency to drift through the forest to the Lake shores, where they halt and concentrate, especially on wooded points. But no such explanation will account for the undoubted fact that their nocturnal flights are here of unusual frequency and magnitude, particularly in the autumn. Although the eye fails to note them, even in bright moonlight, the testimony of the ear is sufficient to enable one to judge with reasonable accuracy as to their character and extent, for the birds that compose them are continually calling to one another as they wing their way southward, and their voices can be heard distinctly enough whenever the air is calm. It is perhaps open to doubt if such of these birds as alight at daybreak in the forests about the Lake find more abundant food or better shelter there than they might find in almost any other wooded part of northern New England. However this may be, the route they take has one obvious advantage over most, if not all, the other less frequented ones, for it abounds to a very exceptional degree in conspicuous landmarks, such as birds are believed to depend on in shaping their courses by night. Most useful of these without doubt are the high mountains, although the larger lakes, such as those

of the Rangeley Chain, may be of no slight service, especially when, as so often happens in early autumn, they are enveloped in billowy banks of fog — almost as white and conspicuous in obscure lights as snow-drifts. Taken in combination, all these more northern lakes and mountains, with the mountains lying further to the southward, must furnish to birds that know them through past experience an unbroken chain of familiar landmarks, stretching north and south across the greater part of New England. To human eyes looking down from a superior elevation on such a landscape, all its more prominent features are clearly, if somewhat faintly, revealed at night by the light of the stars alone. Even if the birds see them no better than we do they can make use of them as so many conveniently placed guide-posts, marking a route they are evidently given to following all the way from the Canadian border to within sight of Long Island Sound.

At this point I digress to say a few words about the time-honored belief that many, if not most, birds are guided in their migrations by an intuitive sense of direction or homing instinct, now commonly called orientation. At first almost universally accepted and afterwards very generally discredited, this belief has gained renewed credence of late, chiefly because of the outcome of an interesting experiment made by Dr. Watson, (Carnegie inst. Washington, Publ., 103, 1908), with adult Noddy and Sooty Terns. Five of these, taken in June from their breeding-ground on the Dry Tortugas, were liberated off Cape Hatteras, whence at least three of them returned to the Tortugas in the course of a few days. The importance of this evidence seems to me to have been overestimated and its precise significance more or less misinterpreted. Apparently Dr. Watson claims and certain other subsequent writers believe, that these particular birds could not have visited Cape Hatteras before, simply because no others of their kind had been found there. This, I think, is a rather rash assumption, for the bird-life of the shoal and dangerous waters about Hatteras remains but imperfectly known to ornithologists, and it is by no means certain that Sooty Terns do not sometimes go there. Even if it be granted — as is indeed probable — that Dr. Watson's birds had never been there, the apparent ease with which they found their way back to the Tortugas fails to impress me as mysterious or even very remarkable. For with the weather clear and an almost straight coast-line leading directly to waters with which they were perfectly familiar, they could not well have gone wrong. Indeed the feat they performed seems a simple matter compared with that which I have often witnessed in Vineyard Sound, when Common Terns breeding on

Muskeget Island were flying to or from it, low over the water, through the densest possible fog, each bird apparently heading as straight for the point it desired to reach as if it were steering by a tiny compass embedded at the base of its bill. Such experiences convinced me long ago that Terns and other sea-frequenting birds must possess a highly specialized, and for the most part, intuitive sense of direction. Land-birds, also, may have more or less of it, but they, in my opinion, are less often guided by it than by conspicuous landmarks — and for this obvious reason, that their journeys are conducted for the most part over regions where such marks abound, whereas sea-birds must often traverse wide expanses of water devoid of prominent objects and seemingly uniform in aspect, at least to human eyes. But for migrating birds of every kind, whether they travel by day or by night, over land or over sea, there are shining beacons, of which one or more are visible everywhere and at all times, whenever the sky is not obscured by clouds or fogs. I refer, of course, to the sun, the moon, and the stars. It is true that few of these remain stationary in the heavens. Nevertheless, it does not strike me as inconceivable, nor even so very improbable, that the birds may take some note of them and that the sun and moon at least may frequently serve certain of the more acute and observing species as guides to direction. No doubt the bare possibility of such a thing would be denied by many, if not most, modern naturalists, especially the younger ones belonging to that school of opinion, now so popular, which insists that of all the beings on this earth man alone is capable of intelligent observation or possesses anything approaching reasoning power.

ANNOTATED LIST.

COLYMBIDAE.

Colymbus grisigena holboelli (Reinhardt).

HOLBOELL'S GREBE.

Transient visitor, not uncommon in autumn, apparently rare in spring.
May 21, 1897, two, in breeding plumage, seen together in the Lake.
October 15–25.
October 8, 1893, two heard calling at night.
November 1, 1884, one seen in the Lake.

Seldom if ever have I spent an autumn at Lake Umbagog without seeing a few Holboell's Grebe. They begin to appear before the middle

of October, and occur oftenest during the latter half of that month, frequenting the broader, deeper reaches of the Lake, where there is little or no aquatic vegetation, and rarely venturing within gunshot of its shores. Sometimes they are met with singly, sometimes in flocks containing as many as eight or nine birds each,— with, perhaps, one or two Horned Grebes, also. I have never known them to alight in neighboring ponds or rivers, although it is probable that they occasionally do so. It is their usual, if not invariable, practice to arrive from the north during the night or just at daybreak and to pass on southward early in the following night. Thus they are accustomed to migrate during the hours of darkness, and to spend only a single day in the Lake, where, if unmolested, they float or paddle idly about, seldom or never diving except when startled or pursued. This behaviour has led me to conclude that they find here but little if any food such as they require and that the Lake serves them chiefly as a resting place where they can drink and bathe, and doze in the autumn sun, with reasonable security, after an overland flight, doubtless of considerable length, and perhaps extending, when completed, all the way from the salt waters of Hudson Bay to those of the ocean off Portland, Maine,— a distance of some seven hundred miles. Along this route — assuming that they really follow it — are scattered many lakes and rivers where they may break the journey, if so inclined, before reaching Umbagog, beyond which, however, they are not likely to pause again until they arrive at the sea-coast.

The following passages from my journal describe some of the most interesting field-experiences I have had with Holboell's Grebe at Lake Umbagog:—

1889, October 19.— Just after breakfast we discovered a flock of six Old Squaws in the Lake off B Brook Cove. Concealing the bows of our boat with a screen of grass we started after them when Jim spied another flock of eight light-coloured birds within a few hundred yards. We paddled up to these at once. Through my glass I could see that they were Grebes and that one was unmistakably a Horned Grebe. The others looked no larger, and although they appeared browner in colour, I concluded that all were Horned Grebes. When we were within thirty yards I raised my head and began to talk to Jim. Hitherto all the birds in the flock had been floating idly on the calm water or pluming themselves, but the moment I showed myself up went seven long necks, and to my surprise I saw that their owners were Holboell's Grebes. It was too late for a bunch-shot as they scattered at once and began to swim. The next instant they flew, when I brought down one with each barrel, getting both birds after several more shots at them in the water. They made short dives and showed the whole of the neck as well as the head, but not the body, whenever they came to the surface.

1889, October 24.— Early this morning we noticed nine large birds swimming well out in deep water off the entrance to Sunday Cove. They turned out to be Red-necked Grebes. Taking advantage of the strong light cast by the rising sun on the smooth water, we put the boat in its shining pathway and paddled towards them. Of course it dazzled their eyes whenever they looked in our direction, yet gave us no similar inconvenience. One left the others and swam straight to meet us coming within twenty-five yards when I shot it. The others scattered and dove, not one flying. They proved nearly as agile and resourceful divers as Loons, and after chasing several of them considerable distances, we had to give up what was evidently a hopeless attempt to secure another specimen. As we were approaching the flock, a Brook Trout that must have weighed fully eight pounds sprang clear of the water within twenty yards of us. It came out broadside and we distinctly saw its red spots and broad square tail.

1890, October 13.— We saw two Horned Grebes and what I took to be a Red-necked Grebe. The latter was very noisy calling *kr-r-uck*, *kr-ar-r-r*, *krur*, almost like a Raven.

1893, October 8.— At frequent intervals after dark this evening and at times quite regularly every half minute or so there came to our ears from the Lake a sound which none of us remembered to have ever heard before. To be more accurate there were two sounds which, although radically different, evidently proceeded from the same source, for one invariably accompanied or rather preceded the other. The first was a peculiar pulsating whistle, hollow in tone and closely similar to the sound made by the wings of the Golden-eye. This was immediately followed by a strident *crar-ar-r-r-r* which was usually repeated two or three times. It was always preceded and sometimes also followed by the whistle. Both sounds were loud enough to be easily heard at the distance of a mile or more. They came from the middle of the Lake and must have been made by some species of water-fowl. Once the bird — whatever it was — flew up and down the Lake, giving its strange cries repeatedly as it passed our camp. Will Sargent thought that the whistle as well as the *crar-ar-r-r-r* was of vocal origin, and I had the same impression.

1893, October 9.— Soon after breakfast this morning we heard the same mysterious cries that were noted last night. They came from the direction of B Point off which we could see a large bird in the water, too far away, however, to be made out distinctly even with the aid of the glass. Jim Bernier, who came up on the steamer a little later, assures me that it was a Red-necked Grebe; he knows this species perfectly well having seen me shoot several. He says the steamer ran past it within short gunshot-range, affording him a good view of it. It was the only water-bird of any kind which they saw above the Narrows, and the Lake was as smooth as glass at the time. I now recollect hearing the *crar-ar-r-r-r* cry in October, 1890 and attributing it then to Holboell's Grebe. While the evidence in the present case is not conclusive, it leaves little doubt in my mind that the author of the cries above described must be Holboell's Grebe.

1897, May 21.— At seven o'clock this morning I started off alone in a canoe

through the narrow, winding channel that leads around the northern end of Great Island into the broad arm of the Lake known as the Sweat Cove. Wreaths of rose-tinted mist were rising everywhere and drifting and swirling lazily along the heavily-wooded shores, but for a time there was not enough air stirring to disturb the glassy surface of the calm water. How the birds sang! It reminded me of good old days to hear their voices coming incessantly from far and near on every hand, in fairly bewildering numbers and variety. The breeze began to rise and to dispel the fog just as I emerged from the western end of the channel. Far out from shore near the middle of the Cove I could see a pair of Black Ducks swimming, and not far from them two other waterfowl which puzzled me at first and indeed until I got within a hundred yards of them. When still at a considerable distance they floated high in the water and looked very like Goosanders, but as I got nearer they stretched up long, slender necks and immediately after this flattened or perhaps partially submerged their bodies, at the same time beginning to swim rapidly away from me down wind, after the manner of Scoters. I now saw that they were Holboell's Grebes, a species which I have never met with here in spring before. They were both in full-nuptial plumage and beautiful birds, the rich chestnut of their necks and the fine ash colour of the throat showing with perfect distinctness in the right lights. Although essentially alike I judged from certain of their actions that they were opposite sexes and probably a mated pair. When I got within one hundred yards of them they took to diving, often remaining under water a surprising length of time, but progressing little or no farther than Whistlers or Scoters would have gone, and not once doubling or attempting to pass me beneath the surface. Hitherto they had kept near together — in fact almost touching one another — but now they became widely separated. One, after making only three or four plunges, rose on wing with apparent ease against the now freshening breeze, and passed me within sixty yards, flying straight and swiftly (if heavily), very like a Loon with the neck stretched out to its full length in front of the body, the legs and feet showing in line with it behind. Soon after alighting again, about two hundred yards away, this bird began calling in an exceedingly loud harsh voice not unlike that of an angry Crow but of much greater volume and intensity. The calls, moreover, were uttered more slowly and indeed with a singular deliberation — or perhaps I should rather say hesitancy — which seemed oddly out of keeping with their imperious quality or tone. There were usually three, but occasionally four, notes given in slow succession, each sounding like *căr* sometimes lengthened to *căăr* or to a broken or quavering *că-ă-ă-r* or *că-ă-ă-ă-r*. These calls (which I had heard before at Lake Umbagog but never until now definitely traced to Holboell's Grebe) were promptly answered by the other bird which I took to be the female, and which all the while I had been pressing hard until she had been driven close in shore. She, however, nearly always gave the prolonged, quavering form of outcry, occasionally prefacing it by a staccato *kup* very like that of the Florida Gallinule. I did not succeed in making her fly, and soon after I left her she and the other quickly swam together. I could easily have shot them both had I been so minded.

According to both Ridgway and Coues (I have consulted no other authorities), the adults as well as young of Holboell's Grebe should invariably wear in autumn a sober brown and white (or greyish) livery quite unlike the strikingly handsome nuptial plumage. Most of the birds we see in Lake Umbagog in October are thus plainly dressed, but two of my specimens from there (30,275, ♀, 19 October, 1889 and 30,274, ♀, 24 October, 1889) have the sides of the neck rufous, paler in shade it is true than with breeding examples, yet essentially pure and so pronounced that I remember noticing it when the birds were swimming in the Lake at gunshot-distance. One of them (30,274) appears to have been adult, but the other has the sides of the head striped so like those of young Grebes of this species, just from the nest, that I doubt if it had completed the first year of its existence. I have a similarly-marked and coloured specimen that was killed in September in British Columbia and I have seen others with conspicuously reddish necks that had been obtained in autumn on the coast of Massachusetts.

Colymbus auritus Linné.

Horned Grebe.

Transient visitor, regularly common and sometimes abundant in autumn, not known to occur in spring.

October 2, 1884, two seen off Pine Point.
October 12–25.

Much of what I have written about Holboell's Grebe could be said with equal truth of the Horned Grebe, but the latter species is much the more numerously represented of the two in autumn, while I have no definite knowledge that it ever occurs in spring.[1]

From the passages relating to it in my journal and note-books I select the following:—

1882, October 18.— While looking for Ducks this afternoon I noticed a flock of eight birds swimming in deep water near the middle of the south arm of the Lake. At first I took them for Scoters, but they proved to be Horned Grebes. Their behaviour surprised me not a little, it was so very unlike that which I hitherto supposed to be characteristic of Grebes of every kind. My

[1] Mrs. Charles Bartlett of Poplar Tavern, Newry, once showed me a mounted Horned Grebe which she said had been killed near the head of Richardson's Lake in the spring of 1882, but as the bird was in the plain brown and white winter plumage I have never felt entire confidence in the accuracy of her statement.

guide, a skilful paddler, worked the boat toward them as carefully as possible, but they flew long before we could get within gun-range, and after almost disappearing in the distance returned and alighted to leeward of us. As we again approached they rose about a hundred yards away against the light breeze, and kept on up wind far enough to give me a long cross-shot which resulted in the killing of one and the wounding of another that we afterwards got. The survivors flew quite out of sight, but a little later reappeared and again alighted. After this we flushed them several times without getting another chance to use the gun. Invariably they swam and floated as buoyantly as so many Ducks, and whenever they took to their wings, they rose from the water more easily than do most sea-frequenting Ducks. When fairly under way they flew very swiftly, and sometimes they mounted high into the air to wheel and double in a compact bunch or cluster not unlike Teal. So very freely did they use their wings that whenever the members of the flock got scattered about in the water they were quite as likely to rise and fly together as to reunite by swimming, although the distance each had to go might be only a few rods. When approached they would stretch up their long necks and draw closely together, but I did not see any of them immerse their bodies, nor did they once attempt to evade us by diving. Even my wounded bird made only one short dive and then, after trying in vain to fly, it allowed us to overtake and pick it up, although its only apparent injury was a broken wing. When in the water they were graceful and attractive looking birds. The only note I heard them utter was a single shrill, wild cry which reminded me of the *cree* of the Oyster-catcher. Each bird in the flock usually gave this call several times just as it rose on wing and again just as it was alighting or about to alight.

1883, October 19.— There were numbers of Horned Grebes in the Lake yesterday and I noted at least forty or fifty of them to-day. They occurred singly, in pairs and triplets, and in small flocks, some of which numbered as many as ten or a dozen birds each. All were in deep water and many near the middle of the wider parts of the open Lake, but some were seen in rocky coves and others not far from bold, ledgy shores. I found them rather shy and difficult to shoot. Often they would fly when our boat was still several hundred yards away. If there was any wind they rose from the water much after the manner of Scoters, and when there was none, they cleared the surface without much apparent effort, after pattering over it by means of their feet as well as wings, for the first few rods. They rarely immersed their bodies and only a few of them resorted to diving when approached. At this practice they seemed less adroit than Pied-billed Grebes and I had no difficulty in shooting them if only I could get near enough. They were very noisy and at times their peculiar calls might be heard coming from about every part of the Lake. The only note they gave was a shrill *cree-e-e*, sometimes rather harsh in quality and sounding more like *crā-ā-ā*.

1883, October 22.— At the outlet I killed a Horned Grebe. There were many of these birds scattered about over the Lake, looking like pieces of white snow-ice floating on a blue winter sea. Nearly all were in deep water well out

from shore. I tried in vain to drive some of them into grass and rushes in shallow bays and coves.

1885, October 12.— Horned Grebes are now abundant in the Lake, scattered about, sometimes singly, oftener in twos, occasionally three together. I see them diving in deep water, apparently for food, usually not less than one hundred yards from the nearest land, but sometimes much nearer than that to shores that are bold and rock-bound. For the most part they are rather tame and easily shot. When approached by a boat they commonly dive a few times and then if hard pressed take wing. As they do not go far under water and rarely double back and as they always expose the entire head and neck whenever they come to the surface, I have no difficulty in killing most of those that I try for. Some do not dive at all when pursued, but merely swim straight on as fast as they can. Their long, slender necks, graceful forms, and movements, and clean greyish plumage, combine to make them beautiful and attractive objects, especially when they are floating close in shore against a background of dark evergreen foliage. Out in the open Lake they look about as white as snow and can be seen at a distance of fully two miles, in the early morning, whenever the water is perfectly calm and the sunlight clear and strong.

1889.— From the 10th of October to the close of that month this year, I saw Horned Grebes almost daily, sometimes singly or in pairs, sometimes as many as three or four together. When in these small flocks the birds usually kept well out in the Lake and on the approach of our boat were quite as apt to fly as to dive, but the single ones and pairs were often observed in shallow water close to shore and not infrequently they resorted to diving when pursued. In no instance, however, did I see any of them take to the grass or lily-pads as the Pied-billed Grebe is given to doing under similar conditions. On the contrary, whenever we met with them near shore, even where there was more or less aquatic vegetation, they always sought to get back into deep, open water as quickly and directly as possible. Like most, if not all, other of the Grebes they are graceful birds on the water and quick as a flash in getting under it, cleaving the surface like a knife-blade and leaving scarce a ripple to mark the spot where they have disappeared. Nevertheless I do not find them difficult to shoot except when they rise on wing beyond gun-range.

1892, October 2.— A Horned Grebe swimming in the Lake off Moose Point this evening made a low but penetrating mewing sound somewhat like one of the calls of the Herring Gull. This was repeated many times in succession at short intervals.

1894, October 2.— About noon to-day we came upon two Horned Grebes in the Lake off Moose Point. As the boat approached they swam away from us, moving very fast, with heads, necks, and bodies showing well above the water and keeping so close together, side by side, that they often seemed to touch each other. Yet when they finally took wing (we were then within twenty yards of them) they first crossed one another in the air and then flew off in opposite directions, one disappearing in the distance towards the north, the other towards the south. This struck me as very remarkable, especially

in view of the fact that we did not shoot at or otherwise especially alarm them.

Writers who are considered authorities on ornithology or field-sports have asserted — and even continue to assert — that certain water-fowl, especially Loons and Grebes, often dive quickly enough to escape a charge of shot. It may be that this sometimes happened in the days of flint-locks, for the discharge of these now obsolete guns was preceded — if by only a very brief interval — by the appearance of a puff of smoke or flame issuing from the powder-pan just as the descending flint struck and lifted its lid. This may have given the birds timely and sufficient warning of their danger, but that any of them, however resourceful and alert, can ever thus preserve their lives against the modern breech-loader, or even a good percussion-fire muzzle-loader, properly loaded and judiciously used, is contrary to my experience and belief. For during the years when I had both opportunity and inclination to pursue with deadly intent such expert divers as Loons (of both species), Holboells, Horned, and Pied-billed Grebes, Anhinga, deep-water Ducks of various kinds, Murres, Auks, Puffins, Cormorants, etc., I found that one and all of them could be killed with reasonable certainty in the water, when doing their utmost to escape by diving, provided one went about it in the right way. This is to use much smaller shot than most gunners go provided with and to get near enough to make sure that it will be effective. It is passing strange that so few sportsmen ever learn or can be taught the value and significance of these rules. It is true that many of them do occasionally make use of fine shot in "shooting over" crippled Ducks, but the majority persist, all their lives, whenever the opportunity offers, in discharging loads of number six, or even number four, shot at Loons and Grebes which are fifty yards or more away, with their bodies, and perhaps also their necks, sunk under water. When, as almost invariably happens under these conditions, the bird escapes injury, it is promptly credited with having done so by diving before the shot reached it. Yet the chances of hitting an immovable object no larger than the head of a Grebe, with coarse shot, at distances exceeding twenty yards, are small indeed, as any one may convince himself by making a few experiments with a close shooting gun at fixed targets.

The observations above given, with others to which it has not seemed necessary to refer, show that for a comparatively small and secluded sheet of inland water, Lake Umbagog is exceptionally favored by Horned Grebes, and that their habits and behaviour there are in

some respects peculiar, or at least unlike those to which they are addicted when living in salt water along our sea-coast. As they visit this Lake so regularly and numerously it is rather strange that I have never met with them elsewhere in its immediate neighborhood, especially in B and C Ponds, both of which are apparently large and deep enough to attract a few birds at the right seasons. The guides tell me that they are found occasionally in Richardson Lake and I have little doubt that they occur in most, if not all, of the larger lakes of the Rangeley Chain. All that I have seen in Lake Umbagog have been in the plain brown and white winter plumage without trace of nuptial ruffs on the head or of chestnut or reddish on neck or sides. The stomachs of those killed and dissected have invariably been packed tightly with a closely-impacted mass of the bird's own feathers — usually white ones only, from the breast and sides. Among these I have occasionally found fragments of the elytra of water-beetles but no fish-bones or other animal remains. Hence it is doubtful if these Grebes ever obtain much food in Lake Umbagog, although they often linger there for days in succession to seek it by persistent diving, in this respect differing from the Holboell's Grebes.

Podilymbus podiceps (Linné).

PIED-BILLED GREBE.

Not uncommon transient visitor in autumn. A few birds breed near Richardson Lake.

August 16, 1873, one seen in Androscoggin River, near Errol Dam.
September 1–October 10.
October 21, 1884, one seen.

I have found Pied-billed Grebes in Lake Umbagog and its connecting waters only at or between the dates above given, when they appear regularly and not uncommonly, but never very numerously, occurring for the most part singly, but sometimes two or three together. Where they find attractive local conditions and are not too much pestered by gunners they often spend a week or more, lingering in one place for days at a time, waxing fat and lazy on abundant food secured apparently with little effort. They frequent shallow, grassy coves of the Lake and marsh-bordered reaches of rivers, such as those of the Androscoggin in the neighborhood of the outlet and of the Cambridge below Abbott's Mill. Unlike the Horned and Holboell's Grebes they shun the deeper and more open parts of the Lake, seldom venturing far

from beds of half-submerged reeds or floating lily-pads into which they are accustomed to retreat whenever danger threatens. Of course there are occasional exceptions to this rule one of which is recorded in my notes under date of September 16, 1900 in nearly the following words:—

> About nine o'clock this morning we noticed a Pied-billed Grebe floating idly on the water off the bold rocky shores of Pine Point. It was a young bird with conspicuous dark stripes on the cheeks and neck. When I approached it in a canoe it rose with some difficulty and flew out over the Lake, alighting fully two hundred yards from shore.

The notes mention another experience relating to conditions of environment directly opposite to those just described yet, and perhaps equally exceptional. It happened on September 17, 1880, when my guide and I found a Pied-billed Grebe in Cambridge River where, just above the Forks, it winds through a natural meadow in the heart of a great forest. At this particular time and place the stream was a mere brook six or eight feet in width and only a few inches in depth. Yet the Grebe refused to leave it or even to take wing, although we followed the bird for some distance and more than once almost caught it in our hands.

On another occasion (September 2, 1896), to which the notes refer, I was paddling down the Androscoggin River not far from the outlet when a Pied-billed Grebe startled me by suddenly appearing on wing within a few yards of my canoe, coming from under an overhanging earthy bank quite barren of vegetation, beneath which it must have been crouching in shallow water, hoping to escape my notice. Although there was absolutely no wind, it rose without apparent difficulty and flew swiftly off in the direction of the Lake.

Thanks to its expertness in diving and to its adroitness in hiding among aquatic vegetation, the Pied-billed Grebe commonly eludes such gunners as care to go in pursuit of so worthless a bird. When approached by men in boats, it occasionally rises on wing, but much oftener disappears beneath the water, sometimes head foremost after the manner of most diving birds, sometimes by sinking first the body, then the neck and last of all the head, this being done rather slowly or deliberately and so deftly that the surface of the water is scarce disturbed — a feat likely to move to wonder and admiration those who witness it for the first time. On returning to the surface the bird rarely shows more than its head and neck and often only the head, while sometimes nothing but the bill is exposed and this, perhaps,

under the raised edge of a lily-pad where it is not likely to be seen by even the keenest human eyes.

The course of a Grebe swimming under water in shallow parts of the Lake much infested by small Pickerel is often very accurately indicated by the leaping of these fish as they are successively disturbed by the appearance of what, no doubt, impresses them as a rather startling apparition or perhaps a large, and particularly voracious, predatory fish. They may have substantial grounds for avoiding it although I cannot recall ever finding their remains in the stomachs of Pied-billed Grebes. These seldom contain much undigested food although like those of many, if not all, other kinds of Grebes, they are commonly crammed with soggy masses of feathers which the birds pluck, it is thought, from their own bodies and swallow for purposes not as yet definitely understood.

Although Pied-billed Grebes are not known or suspected to breed in or very near Lake Umbagog, they do so regularly and commonly, if only locally, in the neighborhood of Richardson Lake. I first learned of this in 1881 when Alva Coolidge sent me an egg and the head of an adult bird which had been taken on June 22 of that year by Steve Morse, an Upton guide, in a shallow, muddy pond, in what is locally called the Cranberry Bog. Morse afterwards told me that the nest was floating among lily-pads where the water was about eight inches deep and that he shot the bird on it, thereby breaking several other eggs which it contained; another nest that he examined closely was built in a tussock. In the summer of 1883 Alva Coolidge found Pied-billed Grebes with broods of downy young in the Pond just mentioned and also in Richardson Pond. In 1893 Will Sargent saw a number of old birds in the former wond during repeated visits which he made to it in the month of June. I have no information of later date than that last given respecting the presence of Grebes in summer in either of these Ponds.

GAVIIDAE.

Gavia immer immer (Brünnich).

Loon.

Formerly a very common summer resident, now comparatively seldom seen.

During the earlier years of my experience at Lake Umbagog one could not go the length of it at any season when it was free from ice without seeing Loons. If the month were May or June the number

seen was not likely to exceed half a dozen but in late summer or early autumn, after the young were out, as many as a dozen or fifteen might be noted. They frequented every part of the Lake preferring its central reaches and larger coves, where the water was free from vegetation and rather deep, but sometimes entering shallow, grassy coves and even narrow, winding lagoons like Leonard's Pond where I have surprised them on more than one occasion. If I am not mistaken they were occasionally met with in the Lower Magalloway River and in the Androscoggin between the outlet and Errol Dam, but this impression is not confirmed by anything in my note-books. B Pond, C Pond, and Pond-in-the-River always harbored at least one or two breeding pairs each, and there were many other equally secluded and still smaller bodies of water lying not far from the Lake in deep hollows encircled by wooded mountain ridges, to which they paid more or less frequent visits. As they offered conspicuous and attractive targets for rifle practice and were wholly unprotected, either by law or by popular sentiment, it was customary to shoot at them whenever opportunity offered. Often the progress of the steamer up the Lake was indicated and proclaimed by the frequent popping of guns fired from her decks at Loons and other water-fowl. This frightened away many of the Ducks, but the Loons were less disturbed by it seeming, indeed, to rather enjoy the excitement of occasional hair-breadth escapes from injury or death. I have seen even the old, black-headed ones rise in the water and flap their wings or indulge in outbursts of what seemed very like derisive laughter, when the bullets were striking thick and fast about them. Curiously enough they often permitted the noisy, smoke-belching steamer to approach them almost within shot-gun range, whereas they habitually gave as wide a berth as possible to small boats and canoes, however silently and skilfully paddled. Nor was a screen of grass or bushes, draped about the bows of a canoe, of the slightest avail against their keen power of observation, although other water-birds almost equally wary were frequently deceived by it. During the first ten or twelve years comparatively few Loons were killed in the Lake — probably never more than two or three in any one season and these mostly young birds. But with the advent of improved rifles, and the ever-increasing skill of those who used them, the Loons began to suffer more and more seriously. Nevertheless they continued to hold their own fairly well up to almost the close of the last century. Since then they have been growing fewer and fewer year by year until they have almost, if not wholly, ceased to breed in any part of the Lake. While it is beyond question that the gunners

have had something to do with their disappearance, I am inclined to attribute it largely to the recent introduction of motor-boats with which the Lake now swarms and which, in my opinion, would alone have brought it to pass. In either case it is deeply to be regretted, for the Loon is an essentially harmless bird and incomparably the most interesting and attractive of all the water-fowl that occur in this region.

It is by no means uncommon for Loons to appear in the Umbagog Region in spring before its lakes and ponds are wholly free from ice, and they sometimes linger in autumn until even the larger lakes are frozen over. Occasionally they come so early or stay so late that they can find no open water and must perforce take to the ice from which they are quite as powerless to rise as from the land. About January 1, 1886, as I learn from my guide, Will Sargent, three birds were seen on the ice of Richardson Lake by the care-taker at Middle Dam. When he went in pursuit of them, they flopped off over the smooth surface almost as fast as he could run, but were finally overtaken and captured. All three seemed to be in perfectly sound and healthy condition. One fought so savagely that he felt justified in killing it. The other two were liberated in a small space of water just above the Dam where a strong current prevents the formation of ice. Here they passed the greater part of the winter disappearing mysteriously, however, before the Lake reopened in the spring.

A fully-mature Loon in black and white nuptial plumage is an attractive and, indeed, noble looking bird when seen under almost any conditions of environment. He appears to perhaps the best advantage when one has the opportunity to watch him in some secluded cove bordered by virgin forest, where he is wholly unconscious of human observation and not especially apprehensive of hidden danger. At such times his dignity of bearing and grace of movement are truly admirable. Now he glides slowly over the calm surface, occasionally stopping to look keenly about. Next he sips the water daintily as if merely tasting it. Then he may immerse his head to a little above the eyes, holding it thus for half a minute or more as he moves straight on for a distance of several rods, apparently gazing intently into the liquid depths below in search of prey — an interesting habit very characteristic of his tribe. Sooner or later he will begin diving for fish with surprising energy and skill, for he is a past master of this art as well as that of swimming long distances under water. Certain of the Grebes and Mergansers may disappear beneath the surface as quickly and gracefully as he, but their downward plunges lack some-

thing of the finish and very much of the momentum which make his so impressive. Nor can any one of them travel so far and so swiftly under water as can the Loon. Curiously enough he habitually progresses much faster *beneath* than on the surface. Dr. C. W. Townsend has suggested that this is due chiefly to the fact — said to be definitely established — that moving bodies meet with less resistance when totally submerged than when partly on and partly beneath the surface. It may be so but, as I know from personal observation, the Loon, like many other aquatic birds, sometimes uses his wings when swimming under water. This I have witnessed only a very few times when the bird, hard pressed, was doubling back beneath a pursuing boat. On such occasions I have seen him develop a speed which seemed impossible of achievement by the aid of his feet alone.

In writing of the Horned Grebe I said in effect (p. 40) that I have never known any water-bird to dive with sufficient quickness to escape a charge of shot fired at reasonably short range. At the risk of weakening the force of this statement I am bound in fairness to mention here an experience which I had at Lake Umbagog on October 20, 1885. My notes describe it thus:—

My guide stalked a Loon to-day and got a long shot at it from behind a rock. The bird was evidently mistrustful of danger and keenly alert, although it continued to float with its entire back, as well as the head and neck, exposed. I was so placed that I could take in the muzzle of the gun, its target, and the intervening space, at a single glance. Exactly with the puff of smoke from the gun the Loon cleft the water like a flash of lightning and was gone before the first shot struck the Lake. The distance between the man and the bird was perhaps sixty yards — certainly not more than that. The gun was a modern breech-loader.

When this observation was made and recorded I entertained no doubts as to its entire accuracy, but it is easy to be mistaken concerning such a matter and, as I now perceive, it is quite possible and indeed probable that the Loon caught sight of the gun as the guide thrust it out over the rock and dived, not as I thought when the smoke first issued from it, but a fraction of a second before it was discharged.

Although the Loons which frequent Lake Umbagog are for the most part so wary and resourceful that it is useless to attempt to kill them except with long-range rifles, they sometimes show slight fear of man or endeavor to evade him by tactics apparently clumsy or perilously inadequate. Thus on June 22, 1909, an exceptionally tame or stupid bird entered a grassy cove less than an acre in extent where our house-boat was lying at anchor, swimming past her within sixty yards with-

out appearing to notice either her or several men who were standing in plain sight on her deck talking rather loudly. An instance of the eccentricity of behaviour to which I have alluded and which I cannot account for is described in my notes under date of September 5, 1897, in nearly the following words:—

As we were approaching Sturtevant Cove in our canoe an adult Loon of exceptionally large size appeared floating on the glassy surface of the Lake about one hundred yards away. Ordinarily I do not molest these noble birds, but I coveted the skin of this gigantic fellow and at once fired a charge of buckshot at him. Either he was a Loon of peculiar habits or one of the pellets grazed him for he began making a series of short dives, often reappearing within less than forty yards from the spot where he was first seen and moving for the most part in a circle about two hundred yards in diameter, but occasionally doubling back on his course. He came up repeatedly within twenty yards of us, but on every such occasion he merely broke water and instantly disappeared again, like a rising fish. If I had had shells enough to risk snap shots freely I could easily have killed him, but unfortunately I had brought only two loaded with coarse shot and the second of these, like the first, was fired at long range and without success. By watching the air-bubbles as they came to the surface just after he had dived near us I satisfied myself that frequently, if not habitually, he went straight down to a considerable depth (fully twenty-five feet I thought) and then either doubled or described a half circle before settling on his final course. Owing, no doubt, to the waste of time and strength caused by these needlessly deep descents and by the doubling or circling which followed them, he commonly came to the surface again within from forty to seventy yards of the spot where he had gone down, although occasionally he covered more then two hundred yards of horizontal distance during a single dive. Not long after we left him he raised himself erect in the water and flapped his wings, sending his long, quavering laugh after us as if in derision.

I was glad to interpret this behaviour as indicating that he was unharmed. Had he been struck by one or two of my shot he might not have shown it, however, for an old Loon is marvellously plucky as well as exceedingly tough and tenacious of life, receiving, without flinching, wounds which would instantly paralyze almost any other bird, and recovering from some which one would suppose must prove fatal. Although this subject is not pleasant to dwell upon, it would seem to have enough scientific interest to warrant brief mention here of two experiences which alone are sufficient to establish the truth of what I have just said. They are as follows:—

On September 15, 1873, I shot at an adult female Loon, with a 44 calibre rifle, swimming in the Lake about two hundred and fifty yards away. As I afterwards learned when I skinned and dissected her the

heavy bullet passed directly through the middle of her neck, about three inches above the body, partially shattering some of the vertebrae and cutting the jugular vein, yet she dove twice after receiving this ghastly wound, going each time a long distance under water. When I finally came up with her she was swimming on the surface with head and neck erect and so vigorously that I had to make use of my shot gun before I could lay hands on her. All this is recorded in notes written at the time and in nearly the words that I have just used — else I should not venture to report anything so well-nigh incredible. The bird weighed eleven pounds and two ounces. Her skin is still in my collection.

The other instance above referred to relates to a Loon which was killed a few years later in Richardson Lake by Aldana Brooks of Upton, whom I have known since boyhood. This bird possessed only an upper mandible the under one having been severed cleanly at its feathered base apparently by a rifle ball, and evidently months if not years before, for the wound had healed perfectly. How a Loon thus mutilated could have obtained its customary food when its hurt was still fresh, or indeed at any time subsequently, is difficult to understand. If I remember rightly, Brooks said that it was in good flesh and condition, but this the notes do not affirm.

Loons, as I have said, seem unable to rise into the air from either land or ice. Nor can they do so apparently from perfectly calm, waveless water, although they sometimes make the attempt, especially when harried by men in boats, half-running, half-flying over it for perhaps a quarter of a mile, evidently trying their best to win freedom from it, but always, so far as I have observed, settling back into it at the last, after much fruitless effort. With the assistance of wind, however, they rarely fail to succeed, invariably rising against it. The stronger and steadier it blows, the quicker and more easily they get clear of the water and under full headway. A departing bird bound for some distant lake or pond lying beyond lofty hills or ridges commonly mounts upward in circles, or rather spirals, to a considerable height, before shaping its direct and level course. I remember watching one rise in this way over C Pond to an elevation of fully one thousand feet before it headed for Richardson Lake. It spent just twenty minutes in making the ascent. An incoming bird descending from a great height presents a beautiful and indeed thrilling sight. After circling a few times it comes hurtling down, on steep and more or less zig-zag inclines, with tremendous velocity, its stiffly-set wings making a sound like that of wind in pines. Although it checks its

speed and changes its course to a nearly horizontal one before alighting, it usually strikes the water with considerable momentum, sending the flashing spray well into the air and "scooting" over the surface for two or three yards just after it folds its strong wings.

During ordinary flight the wings of a Loon sometimes make a continuous *whuf-whuf-whuf*, rather loud and very suggestive of the puffing of a slow-moving, hard-straining locomotive engine. It is especially associated in my mind with foggy autumnal mornings at Pine Point, when I used first to hear it and then to see the big birds dimly through the mist as they passed overhead just above the trees.

No one can — or at least once could — camp long on the shores of Lake Umbagog in summer or autumn without hearing by night, as well as by day, a great variety of vocal sounds made by Loons. To attempt to deal with all of these separately would be tedious and, in my opinion, also unprofitable, for many of them appear to be closely similar to, if not mere variants of, one another. Indeed, of all that I remember to have heard, only four seem sufficiently different and unrelated to merit descriptive appellations. These may be termed the *laugh*, the *wail*, the *hoot*, and the *cup*.

The *laugh* is a wild, ringing outburst, audible at distances considerably exceeding a mile, and varying greatly in character and duration. At times it seems to express derision or defiance, at others exultation, at still others sadness of spirit. Always it is musical in quality and delightfully suggestive of the places where it is oftenest heard. Ordinarily it consists of a series of four or five notes given very rapidly in a loud, clear, tremulous, falsetto voice. This utterance is commonly repeated twice and often as many as three or four times, at intervals so brief that the effect produced is that of an almost unbroken succession of sounds lasting, perhaps, for several seconds. It is oftenest heard thus in spring and early summer when it comes not infrequently to one's ears at all hours of the day and night, not only from birds swimming in the Lake but also from those flying over it high in air. Towards the close of summer and in autumn it may be shortened to two or three notes and sometimes to one, only, the first of the series, apparently, which is different from the others and lower pitched. These calls are much used by old birds anxious for the safety of newly-hatched young. Lucius L. Hubbard in his Woods and Lakes of Maine, 1883, has written at some length and very pleasingly (p. 86–90) about the voice of the Loon; he appears to regard these old bird calls as quite distinct from any of the notes which make up the laugh, but I fail to differentiate them from the latter.

The *wail* is a plaintive long-drawn *er-lòo* or *woo-lòo-oo*, sometimes supplemented by an additional terminal syllable high pitched and having a rising inflection, which changes or extends the utterance to *er-loo-èe*, or *woo-lòo-oo-èe*, occasionally shortened to *loo-èe*. This cry is used chiefly by solitary Loons, both old and immature. They give it mostly by night or just at daybreak and invariably when in the water. At all times grateful and restful to the senses of an appreciative human listener it is especially so when, tempered by distance and imbued with mystery by reason of darkness, it falls on the ear from far out on the slumbering Lake, like the reassuring watch-word of some clear-voiced sentinel stationed there. The guides assert that when it is uttered by day during perfectly calm weather and after prolonged silence on the part of the bird, it is an almost infallible indication of the near approach of wind. At first I was inclined to ridicule this belief, but eventually I learned to put strong faith in it. For I have seldom known the bird's prophecy thus expressed to fail, whereas I have seen it fulfilled almost countless times, not infrequently with such promptness and emphasis that the Lake began to be ruffled by the first eddying puffs of wind within five minutes after the warning cry was heard, and became covered with racing, white-capped waves only ten or fifteen minutes later. These Loon-foretold breezes start oftenest under cloudless skies which to human eyes present no indications of the impending change. It may lead merely to trifling and temporary local disturbance in generally fine and settled weather, or to a violent, protracted, and widespread storm. In either case it is not less mysterious than remarkable that the Loon can be thus forewarned of its oncoming.

I find the *hoot* described in one place in my notes as "a strange, low, yet penetrating, hooting or tooting sound like that made by blowing into a bung hole"; in another as "a rather deep and hollow *hoo* varying to an abrupt *ah* so very human in quality that it might easily be mistaken for the call or ejaculation of a man." It is commonly repeated twice or thrice in quick succession but sometimes is given only once. I used to hear it oftenest in September and in the early morning when the Lake was calm and enshrouded in fog. Whenever I traced it to its source I invariably found two Loons swimming near together and perhaps sporting with one another. It can be heard at a distance of nearly a mile when the air is damp and still.

The *cup* is simply that and nothing more — a short, abrupt, staccato cry not unlike that of the Florida Gallinule but louder. I have heard it but a few times, usually when two or three birds were swimming in company.

There should be no doubt in the mind of anyone who loves and enjoys the wilderness as to the desirability of protecting the Loon by law and of abstaining from wantonly disturbing him in his chosen haunts. He is one of the most admirable of all wild creatures, and his presence adds immeasurably to the interest and attractiveness of the water he frequents, whether they be those of inland lakes and rivers or of stretches of ocean bordering on the coast. Fishermen of whatever kind or class should especially prize and cherish him, since they have more opportunities than most other men of watching and enjoying him, yet they are given to decry him at all times and to slaying him whenever opportunity offers, because he lays claim (by prior right be it remembered) to a modest share of the animal life which they destroy by wholesale. The chances are that he is more a conservator than an exterminator of valuable food fishes, for the spawn of these is sought and devoured by essentially worthless ones on many of which he is known or believed to prey. If as may be admitted he occasionally gobbles up a fine young Salmon or Trout of medium size what does it matter? Their numbers are countless, his by comparison pitifully few. Moreover, they can be and are multiplied quickly and endlessly by artificial propagation, while the increase of his race cannot be so ordered and under the most favoring conditions is very slow. He should therefore be made welcome to as many of them as he desires, for their surplus could not well be put to better use. If the fishermen suffer any loss in consequence, it is not likely to be appreciable, nor are they entitled to compensation for it. When Deer protected by law molest cultivated crops, the farmer can justly claim from the State remuneration for whatever they destroy, for he has produced the crops and they belong exclusively to him, but fish in public waters are public property, at least until caught and the State or Federal Government can do what it likes with its own. No one objects to the expenditure of very considerable sums of public money for the maintenance of fish- or flesh-eating birds and other animals confined in zoölogical parks. Why should not a reasonable number of Loons, Herons, Eagles, and other equally beautiful and attractive birds in which innumerable people take deep interest be permitted to subsist at only trifling and indirect cost to anyone on public bounty? The principle that they should be allowed to do so has been recognized and applied in a few States which have granted some of the protection by law, but as yet it has not received anything like the general endorsement which it merits. It should be advocated boldly and strenuously whenever occasion requires, and sportsmen and fishermen who object to it should be made to understand that it is not enough to show that

creatures which they desire to have destroyed prey to some extent on others which are of especial value to them. Unless they can also prove that such depredations are widespread and really serious, their wishes and interests should not be considered when they conflict with a still greater number of people who cherish animal life chiefly because of its aesthetic value and attraction.

Between 1871 and 1880 there were probably never less than five or six pairs of Loons breeding in different parts of the Lake. I looked for their eggs without success and indeed with no strong hope of it, for they were seldom laid before the usual date of my return to Cambridge. Soon after this two or three sets were likely to be found by local guides or hunters who searched for them persistently whenever opportunity offered, selling the eggs to visiting ornithologists and sportsmen at a fixed price of one dollar each. Of these native collectors Marshall Whitney and Alva Coolidge were the most successful. The former was a reserved and secretive man, disinclined to say more than was absolutely necessary concerning the history of the specimens he had for sale; but Coolidge always told me freely all he knew about his eggs and took me to places where they had been found. These were usually among scattered alders and other bushes growing just above high-water mark on small, wooded islands having bold and perhaps rocky shores. One nest was so placed that the birds had to climb a steep bank over large boulders in order to reach it. They made smoothly-worn paths from one to five rods in length, leading directly back from the water to their nests, where the shores were muddy or earthy. A few pairs nested on wooded points directly connected with the mainland and others on open, grassy or brush-covered, floating islands such as that near the Lake House. The eggs, always two in number, were rarely laid before the 15th or 20th of June and often not until the first week of July. As a rule they were found lying on the bare earth in a hollow apparently scraped out by the birds. Indeed Coolidge has seen only two real *nests* during his entire experience. One of these was a bulky affair mainly composed of grass. The other was built up of mud and a few sticks a few inches above the surface of shallow water which surrounded it on every side with no grass or bushes near it, but with a big rock directly behind it. The latter nest contained two eggs on June 14, 1903. It was in a cove in B Pond where the water-level varies comparatively little throughout the year. A nest so placed in Lake Umbagog would be in constant peril of submergence, perhaps to a depth of four or five feet. The Loons, no doubt, are quite aware of this fact for they have never

been known to run such a risk in the Lake. Whenever birds are surprised sitting on eggs well back from the water, they invariably make straight for it by flopping clumsily, but with remarkable speed, over the intervening land, for they are apparently quite unable to rise on wing from the surface of the ground. When Coolidge found the nest in B Pond, the bird slid from it into the water and swam out beneath the surface and directly under his boat, as he was entering the cove. I had much the same experience on July 16, 1896, with a Loon that I started from a nest similarly placed in a fresh-water pond near the head of Penobscot Bay, Maine.

Gavia stellata (Pontoppidan).

RED-THROATED LOON.

Uncommon transient visitor in autumn.
September 17–October 21.

As far as I have been able to learn, Red-throated Loons visit Lake Umbagog only during their southward migrations in autumn, when they occur sparingly and infrequently, sometimes singly, sometimes two or three together, arriving during the night or about daybreak, and rarely, if ever, remaining over more than a single day, unless compelled to do so by gunshot wounds. They alight in the broader and deeper reaches where, at safe distances from the nearest shores, they spend most of their time, floating idly on the water or preening their feathers, sometimes diving a few times, apparently, in quest of fish. It is not difficult to shoot them, for they usually permit a skilfully paddled boat to approach within fifty or sixty yards, especially if its bows be screened with grass or bushes. Unlike the common Loons they are much more likely to take wing than to dive when pursued by gunners, and should they resort to the latter method of escape, are more easily secured than is the bigger bird, for they practise it with less skill and resourcefulness, although not unadroitly. Sometimes they elude pursuit by flying to a distant part of the Lake, but they seldom or never leave it except under cover of darkness. The only vocal sound I ever heard from them there is described in my notes as intermediate "between the quack of a Duck and the honk of a Goose"; this they occasionally utter when flying about over the water. My collection contains three specimens of the Red-throated Loon taken by me at Lake Umbagog. These are young birds as were all the others that I remember to have seen in or about this Lake.

Uria lomvia lomvia (Linné).

Brünnich's Murre.

Of rare occurrence, apparently only in winter and late autumn.

I have three Brünnich's Murres which were taken in or near Lake Umbagog, and notes of two other birds captured there which were presumably of the same species, although I have not seen either of them. A singular but unquestionably authentic story relates to one of my specimens (the first received). Sometime (the precise date was not noted) in January, 1894, the well-known guides Luman Sargent and Steve Morse were on their way from Upton to Middle Dam when, at a distance of about fifty rods from the shore of B Pond and in dense spruce woods, they noticed in the snow a deep furrow bordered on both sides by lighter impressions apparently made by the wings of a good-sized bird. At first they thought that a Fox must have passed that way with a struggling Partridge in his mouth, but on following the trail for a few yards beyond the point where it crossed the path, they came upon the Murre lying helpless in the snow, but alive and apparently uninjured. The snow was three feet deep in the woods, and Lake Umbagog, as well as B Pond, encased in ice two feet thick. Luman killed the bird which was mounted by W. H. Merrow, a taxidermist at West Bethel, Maine, before it came into my possession. Steve could not recall ever seeing anything that resembled it during his previous long experience as guide and hunter, but Luman had killed a precisely similar looking bird about four to six weeks before the time just referred to, finding it swimming in B Pond which was then open. Several shots that he fired at it with his rifle at long range did not seem to alarm it in the least, although the bullets struck close about it. He finally paddled his boat to within ten or twelve feet of it and put a bullet through its head. It was quite alone and no other water-fowl of any kind were seen elsewhere in the Pond. This Murre, also, was sent to a taxidermist and its mounted skin was afterwards placed on exhibition at the hotel "camp" at Middle Dam. What has since become of it I do not know.

My second specimen above referred to was obtained from John H. Raymond of Upton, who wrote me that he caught it on December 28, 1900 "on Umbagog Lake" which must have been frozen over at the time, although this his letter does not state. The bird died in captivity on January 7 following; when it reached me still in the flesh a few days later I found that it was an adult in winter plumage and much emaciated.

The Brünnich's Murre last received by me from Lake Umbagog was

also an adult and thin in flesh, although less so than the one just mentioned. I had it from Aldana Brooks, the care-taker at the "camp" known as "Metalluc Lodge," who found it lying dead on the frozen Lake "not far from Metalluc Island" on January 8, 1909 "after a heavy rain" succeeded by "cold" weather. On the following day, about a mile farther off in the direction of Tyler Cove, he came upon another dead bird which he writes was "just like" the first save that it had "more white on the throat," an indication that it was less mature. What he did with it I am unable to say.

According to an item which appeared in Maine Woods (a newspaper published weekly at Phillips, Maine), on January 13 of this same year, "Fred A. Wendall of Livermore Falls (Maine) * * * has a fine specimen of the Brünnich's Murre picked up recently [*i.e.* not long before the date of issue of the paper just given] near Moose Hill by George Pettingill's young son. The bird was in an exhausted condition and as thin as a rail when the boy found him in the snow." From this it would appear that more than one locality in the interior of northern New England received a visit from Brünnich's Murres in January 1909. They have been known to appear repeatedly in early winter at places much farther inland and really numerously at times in the region just to the south of the Great Lakes. Mr. J. H. Fleming has published a very able and interesting account (Proc. Internat. ornith. congress, 1906, **4**, 1905, p. 528–543) of a number of these inroads. He maintains — correctly I believe — that they represent sporadic and unpremeditated migrations directly from Hudson Bay, where large numbers of Brunnich's Murres are accustomed to spend the winter. When, as occasionally happens, this great inland sea freezes completely over, all the Murres must leave it, of course. Many, if not most of them, probably go southward instead of seeking the ocean to the eastward of Hudson Strait as would seem to be the wiser plan, for most, if not all of those which invade the interior of the United States are thought to perish of starvation, being apparently unable to get even a temporary living in fresh-water lakes and rivers.

LARIDAE.

Larus argentatus argentatus Pontoppidan.

Herring Gull.

Summer resident, occurring regularly but not numerously.

To most of us who live on or near the sea-coast, a Herring Gull seems somewhat out of place when seen about inland waters, especially if,

like the Rangeley Lakes, they be surrounded by mountains and bordered by evergreen forests. Nevertheless the bird is quite as much at home in these Lakes as in salt water, haunting all of them at every season when they are free from ice. In Lake Umbagog it is almost constantly present from early spring to late autumn, frequenting, for the most part, the broader and more open reaches, but also entering, rather often, many of the lesser coves and even such small land-locked lagoons as Leonard's Pond, while its daily wanderings sometimes extend down the Androscoggin River at least as far as Errol Dam. By no means all the Gulls seen about the Lake in spring and summer nest on its shores. Indeed many, if not most of them, resort to it merely for the purpose of obtaining food, coming, apparently, from B Pond and Rapid River, where a few pairs are accustomed to breed, or perhaps from larger and more distant bodies of water. Hence its Gull population is a shifting, not a fixed, quantity, even at the height of the breeding season. The daily average is somewhat increased, of course, after the young appear. One would expect a further and still greater increase in autumn, due to the arrival of migratory birds coming from regions still further north, but if marked influxes of such a kind ever take place, they have thus far escaped my notice, although late in October I have occasionally seen a flock containing as many as ten or a dozen Gulls who acted as if they might be strangers to the Lake.

I may perhaps best convey some idea of how Herring Gulls look and behave when living amid environment such as that above referred to by giving the following extracts from my journal or other field-books:—

1874, August 12.— Seeing a large bird light on a rock in front of Ellinwood's house we sailed down on him and I was on the point of shooting when I noticed that he was feeding from a tin dipper, and as we ran close up to him he flapped his wings and squalled a few notes of pleasure or recognition and I saw that it was a full-grown *Larus argentatus* in brown plumage, and evidently a tame bird; very possibly it was raised from an egg taken at B Pond where this species breeds.

1874, August 27.— In Black Island Cove I saw to-day two adult Herring Gulls alight in the dead top of a large tree where they sat perched for some time, their white plumage contrasting beautifully with a dark cloud that formed the background of the picture.

1897, May 21–30.— Our house-boat was lying in a little cove near the north end of Great Island during this period, when from one to four Herring Gulls were seen near it daily. They repeatedly entered the cove and on the evening of the 26th three birds remained there for some time swimming about

close to the wooded shore. Although the channel which separates the Island from the mainland on the north is narrow and bordered on both sides by dense forest, it was frequently traversed by these Gulls.

1897, June 1.— In Leonard's Pond, where the house-boat is now anchored, we are visited by Herring Gulls almost as regularly and frequently as we were at Great Island. I never tire of watching and admiring their graceful flight as they beat back and forth around the shores of the lagoon-like pond, their snowy plumage contrasting beautifully with the sombre green of the background of spruces and hemlocks. About half an hour before sunset this evening I found three birds perched in a large pine at the eastern end of the Island in this Pond. As the sky was cloudy and the light already failing at the time, it seemed not impossible that they had gone to roost for the night. I paddled almost under them in my canoe before they would take wing.

1896, August 25.— Herring Gulls have been unusually numerous in the Lake this summer. There were eleven of them flying over it off Pine Point last evening and six appeared there this afternoon, making a great clamor. The sound of their wild, ringing voices recalled certain experiences of last June and July when I was among their breeding haunts in Penobscot Bay. Every one of the different calls I heard them utter there was given here to-day.

The journal and note-books contain several passages relating to the feeding habits of Herring Gulls at Lake Umbagog, which seem to possess at least local interest. From them I select the following:—

1889, September 19.— A Greater Yellow-legs that I shot at to-day near the outlet scaled on set wings for a distance of one hundred yards or more and fell dead into the water well out in the Lake, where a Herring Gull swept down to it and apparently tried to pick it up, but finally flew away without doing so.

1890, October 14.— A young Herring Gull which my friend J. C. Melvin shot to-day, as it was standing on a rock near Pine Point, had a Sucker weighing about half a pound in its throat. The tail of the fish showed outside of the bird's mouth.

1890, October 24.— About noon to-day a young Herring Gull alighted on the water just off our boat-landing in the cove at Pine Point and spent nearly half-an-hour there trying to devour a dead Pickerel. After satisfying himself by repeated futile attempts that it was too large to be swallowed whole he began tearing it to pieces in the region of the head. Because of this mutilation, no doubt, it now sank at once whenever he let go of it. He recovered it a number of times by thrusting his head and neck under water, but at length missed it somehow, probably because it had settled beyond his reach, when he immediately rose into the air over the spot to a height of eight or ten feet, and closing his wings, plunged head first into the water, going quite out of sight except the tip of his tail, but coming up without his fish. He seemed to consider it hopelessly lost and took to bathing, as he bobbed up and down on the waves, thrusting his head into them and scattering the water over his back, at

the same time thrashing the surface with his wings. A similar-looking Gull swimming in the cove last evening was so very tame that it allowed one of the guides to row past it within ten feet without taking flight.

1897, JUNE 10.— Long after sunset this evening a Herring Gull came close about our house-boat in the cove at Great Island, attracted by some schools of small fish, which were ruffling the otherwise glassy surface of the Lake in several places, making it look as if a light breeze were striking there. The Gull would make straight for one of these spots, flying swiftly a yard or two above the water. On reaching the school he would plump down heavily and, as it seemed to us, very clumsily into the middle of it, causing the fish to jump into the air by dozens all around him, but invariably failing to seize any of them, although he tried it again and again, sometimes immersing his head and neck but never his body.

The Herring Gulls at Lake Umbagog, as well as elsewhere, are accustomed, especially in spring and early summer, to indulge in occasional outbursts of wild, ringing calls pleasing, if not musical in quality, markedly exultant in expression and likely to be associated in the mind of a human listener with sights and *smells* peculiar to the sea-coast, rather than with those equally characteristic of remote inland waters sheltered by dense coniferous forests. These cries are given very rapidly and smoothly in a high-pitched, falsetto voice. They vary considerably in number and somewhat in form and expression. Thus I noted them in May or June 1896 as "*clar-clar-clar-clar, cleur, cleur, cleur, clee-eur*"; and on August 25 of the same year as "*clè-ar, clè-ar, cleer-cleer-cleer-cleer-cleer-cleer-cleer-cleer.*" On the latter date I heard also the following "*că-că-că-că*, dry in tone, derisive in expression"; "*co-co-co-co*, varied to *co-ho-ho-ho-ho*, very hard and woodeny in quality"; "*Keow-keow*, deep and hollow in tone."

The sounds just mentioned — with others which I shall not attempt to describe, among which is one that resembles the creaking of a rusty hinge — are made by adult birds at almost every time of year, but oftenest, perhaps, during the breeding season. The young acquire some of them by mid-autumn, but through the summer utter chiefly, if not exclusively, a feeble querulous *cre-e-e-e-er*" or "*t'cree-e-e-e-er*, curiously suggestive of immaturity.

Although I have looked in vain for nests of the Herring Gull about the shores of Lake Umbagog, there can be no question that the birds have bred there repeatedly — although not I suspect every season — during the period covered by my experience. In August, 1874, I saw a young bird, then fully grown and feathered, which had been taken a month or two before, when a downy chick, from a small, rocky island off the entrance to Black Island Cove, by a man who lived at that time

near the Narrows. He gave it full liberty from the first, and after it became strong on the wing, it used to fly about over the Lake, returning to the house every evening to be fed. At length it disappeared, either wandering far away or falling an easy prey to some wanton gunner. As I afterwards heard, the Gulls nested several times in this little Island between 1870 and 1875, when one or two sets of their eggs were obtained there by Alva Coolidge. The birds seen, as above mentioned, late in May and early in June, 1897, about Great Island and Leonard's Pond were almost certainly breeding or preparing to breed in both localities, probably among the dense foliage of coniferous trees not far from the dead stubs on which they occasionally perched, but we searched for their nests without any success. On June 7th of that year my assistant, Mr. C. H. Watrous, brought in some large fragments of the shell of a Herring Gull's egg which he had picked up that morning on the bare ledge of rock at the entrance to Sunday Cove. He saw no trace of a nest there. The appearance of the fragments indicated that the egg had been laid not long before. Of course the egg may have been brought to the ledge by some pilfering Crow, perhaps from a considerable distance.

On May 25 and again on June 4, 1896, I noticed a pair of Herring Gulls flying about over Rapid River only a few hundred yards above where it enters the Lake. Their nest was found shortly afterwards by Will Sargent in a tree at the edge of the water near where I saw them, and just above the stone-piers which mark the place where a rough cart-road, built and used by the early settlers along the Magalloway but long since abandoned, once crossed the River.

B Pond has been a favorite, although not quite constantly frequented, breeding haunt of Herring Gulls for forty years or more. From 1871 or earlier up to about 1885 or a little later, there were usually two nests, but occasionally only one, on large rocks surrounded by water near its southern end. I used to see them in autumn when visiting the Pond to fish for Trout, but not when the birds were occupying them. My notes state that they were bulky structures composed of sticks and Usnea moss and that one of them was on a "rock about four feet square and elevated only a few feet above the water." The eggs, of which I have three sets from this Pond, were almost invariably three in number and were usually laid the first week in June. The guides rarely suffered any of them to hatch, since they commanded a ready enough sale to collectors and fishermen at the Lake House or Middle Dam, but on June 15, 1880, Alva Coolidge found two young a few days old in one of the nests at B Pond. The other nest contained

three eggs not far advanced in incubation on this same date. I doubt if young are often out of the shell so early, for I have never known a full set of eggs to be found anywhere in the Rangeley Lake Region before June 6th.

My notes state that in the autumn of 1893 Will Sargent assured me that to his certain knowledge no Gulls had bred in B Pond for several years past. They were back there again, however, by 1895, when he saw two birds sitting on nests built not as before on rocks, but twelve or fifteen feet above the ground on the stubs of trees, which had lost their tops. The next year (1896) he found three occupied nests about the shores of this Pond and a fourth, already mentioned, near the mouth of Rapid River. All four were in trees, two being in the tops of dead stubs and two on the branches of living pines. He was decidedly of the opinion that this tree-nesting habit was then of very recent origin, for his knowledge of it extended back over a period of only three or four years, during which it had been adopted, he thought, by most, if not all, of the Gulls of the whole region, including those at Richardson Pond, a regularly occupied breeding station near Richardson Lake. I know of no evidence which tends to discredit his belief, unless it be that reported so long ago as 1867 by Mr. E. A. Samuels in the following words:— "The birds which I saw about Lake Umbagog probably had nests in trees, as they frequented a tract of dead pines and hemlocks inaccessible to me on account of inundation, and they frequently alighted in their tops." This, of course, was suggestive rather than conclusive, as, indeed, Mr. Samuels seems to have realized.

Larus delawarensis Ord.

Ring-billed Gull.

On the morning of October 26, 1883, I found a flock of about a dozen medium-sized Gulls, which I took to be Ring-bills, in Cambridge River not far from where it enters the Lake. They behaved rather oddly frequently alighting in a dense cluster on a mud-bar or on some dead stubs, and then almost immediately taking wing again as if struck by sudden panic. Under cover of the River-bank I got within close range of one of them, and was about to shoot it when the quacking of a Duck drew my attention for an instant and the Gull escaped. Although this experience is referred to in my journal in terms which indicate that when it happened I had little or no doubt that the birds were Ring-billed Gulls, I am not now disposed to claim that they were certainly identified as such. One was dark-coloured and evidently immature. All the others looked very white and fully adult.

Larus philadelphia (Ord).

BONAPARTE'S GULL.

Common transient visitor in late summer and early autumn.

August 4, 1873. Three seen in the Lake off the mouth of Cambridge River.

August 15–October 15.

October 31, 1883. One seen on the Lake near Great Island.

Bonaparte's Gulls visit Lake Umbagog regularly and commonly but never very numerously, during their southward migration, which extends over a period of almost if not quite three months. Many of them are old birds, invariably in winter plumage and without dark hoods, even in early August. As a rule they occur singly or not more than two or three together, although I have occasionally seen ten or a dozen in one flock. They sometimes frequent Cambridge River below Abbott's Mill, and the Androscoggin, between the outlet and Leonard's Pond, also appearing about shallow ponds in the grassy marshes bordering on these channels. Their favorite haunts are the broad central reaches of the Lake and of its larger coves, where they course about for hours at a time on tireless wing, twenty or thirty feet above the water, much after the manner of Common Terns which they closely resemble, especially at a distance. Sometimes they keep straight on for miles, presently returning along nearly the same course; rather oftener they circle or double over areas not exceeding two or three hundred acres in extent. Every now and then they descend abruptly to the water, pitching down head foremost like Terns, but with rather less momentum and decidedly more grace. On reaching the water they do not ever plunge into it, as far as I have observed, but either hover just above it for an instant to pick up some floating morsel of food, or alight to swim about for a minute or two before taking wing again. Thus while the downward sweep resembles that of a Tern, it ends in behaviour essentially the same as that of most Gulls. For this reason the evolution, considered as a whole, is of peculiar interest. And so considered it is characteristic of Bonaparte's Gull alone among all the water-birds with which I am acquainted. It does not always terminate, however, in the manner above described, for on nearing the water the bird sometimes turns sharply upward without pausing, and is carried by the impetus gained during its descent nearly if not quite back to the elevation from which it started, and this may be repeated several times in quick succession, when the effect is that of bounding flight, very admirable to behold.

Although Bonaparte's Gulls are addicted, as I have said, to extended

and protracted wandering on wing over the Lake they may devote a considerable portion of the day to floating idly on its surface, especially when the weather is warm and windless. Nor are they unknown to alight for the purpose of resting or basking in the sun on rocky shores bordered by dense forest, but this is unusual, for they commonly give the land a rather wide berth. It is difficult to get near them when they are in the water, particularly if, as often happens, they are accompanied by Herring Gulls. But when on wing they show little or no fear of man, and are easily shot provided one can anticipate and place oneself directly in their path of flight. Like Terns they have a habit of hovering and screaming over wounded comrades that have fallen into the water, but this is not practised very frequently or persistently.

That Lake Umbagog does not altogether fail to supply Bonaparte's Gulls with congenial and substantial food is indicated by their behaviour on occasions such as some of those above referred to, and also by the fact that they often linger about the Lake for several days at a time; but just what they eat while there I do not definitely know, although I have reason to suspect that they may prey chiefly on large Ephemeridae of several different kinds with which the surface of the water is often strewn in autumn. I have repeatedly seen them swooping down and apparently picking up these insects, sometimes in company with Common Terns. That the latter birds eat them greedily I have ascertained beyond possibility of doubt.

A Gull of this species, wearing the winter plumage of the adult, and circling over me in the cove behind Great Island on October 31, 1883, called *càr-hee càr-hee* in a harsh strident voice which reminded me of that of the Common Tern; another, probably immature, but only dimly seen in evening twilight, uttered a shrill, querulous *cree cree* as it flew close past me near the outlet on September 4, 1895. These are the only occasions that I remember when Bonaparte's Gull has ever made a vocal sound within my hearing. Its habitual silence — at least in autumn — seems a fitting attribute of a creature gifted with such grace and beauty, and having apparently a nature not less gentle than refined.

Sterna hirundo Linné.

COMMON TERN.

Uncommon transient visitor in late summer and early autumn.
August 26, 1898. One seen near the outlet.
September 1–20.
October 11, 1889. One seen in north arm of the Lake.

My records of the occurrence of the Common Tern at Lake Umbagog are not too numerous to be given briefly in detail as follows:—

1873, SEPTEMBER 15.— Two young birds seen. I shot one of them, but apparently did not preserve it.

1880, SEPTEMBER 9.— Two seen.

1888, SEPTEMBER 22.— Five seen. One at least was adult. Another, immature, was shot and its skin is in my collection.

1889, OCTOBER 11.— One seen.

1896, SEPTEMBER 11,— Two seen. One of them, an adult female, was taken and the specimen is still in my collection.

1897, SEPTEMBER 21.— One seen.

1898, AUGUST 26.— One seen.

1900, SEPTEMBER 4.— Four seen.

SEPTEMBER 18.— Two seen.

It is a noteworthy fact that nineteen of the twenty Terns just referred to were met with less than a mile from the outlet of the Lake, and the twentieth within sight of it, but two miles or more to the northward, off Whale's Back Cove. While I believe all these birds to have been Common Terns, it is possible that two or three of them which were seen only on wing, at considerable distances, may have been Arctic Terns. I might attach more importance to this doubt were it not that thus far I have found, or at least identified, the Arctic Tern at the Lake only in spring, and the Common Tern not until after the middle of August. In other words the respective seasons of occurrence of these species appear to be quite distinct. To this apparent rule there may be occasional exceptions, however, a possibility which future investigators will do well to bear in mind.

During its infrequent visits to the Lake, the Common Tern behaves much in the same manner as Bonaparte's Gull, with which it occasionally associates. Thus my notes state that the five Terns observed on September 22, 1888, were accompanied, during most of the day, by a Gull of this species as they coursed about over the Lake, every now and then swooping down to pick up Ephemeridae floating on the surface. This I plainly saw them do many times, finally making assurance doubly sure by shooting a bird and taking one of the Mayflies from its throat. My experience indicates that the manner of feeding just described is that oftenest practised by Common Terns at Lake Umbagog, although they sometimes plunge headlong into it, apparently in pursuit of small fishes, if I am not mistaken in my recollection. Unlike the Gulls they seldom if ever alight on the water to rest, although I have known them to do so on the tops of snags and stumps at the

outlet. As they are quite as likely to appear beneath cloudless skies as when storms are raging, I infer that they are not driven thus far inward by tempestuous weather, but that the Lake lies in a path of southward migration overland, followed more or less regularly by at least a few members of their tribe, and leading probably straight from Hudson Bay to Casco Bay on the coast of Maine.

Trustworthy guides to whom I have pointed out Common Terns flying over Lake Umbagog have assured me that they have occasionally found solitary pairs of similar-looking birds nesting on isolated rocks elevated slightly above the water, near the head of Richardson Lake. These reports date back now at least twenty-five years. Although no opportunity of verifying them has been vouchsafed me, I am not inclined to question them further than by doubting whether the "little Gulls," as the men called them, were Common or Arctic Terns.

Sterna paradisaea Brünnich.

ARCTIC TERN.

Uncommon transient visitor in spring.

As far as I have been able to ascertain, the Arctic Tern visits Lake Umbagog only during the months of May and June, apparently when it is passing northward on migration, perhaps to Hudson Bay. The following records, compiled from my journal and note-books, give all the instances known to me of its local occurrence: —

1879, JUNE 17.— A Tern which seemed to belong to this species spent the whole afternoon flying back and forth over the flooded marshes between Abbott's Mill and the mouth of Cambridge River, sometimes coming almost up to the Lake House.

JUNE 18.— What we were inclined to regard as the same bird noted yesterday was met with to-day further up the Lake in the neighborhood of Great Island. On shooting and skinning it, I found that it was an adult male Arctic Tern in full-nuptial plumage. It showed no signs of breeding despite the lateness of the season.

1881, MAY 18.— Four Arctic Terns seen by me on this date were flying over the middle of the Lake off the outlet.

MAY 19.— My guide, Alva Coolidge, killed an adult female Arctic Tern to-day in Richardson Lake, where it was wandering about on wing in company with two other Terns which he said looked exactly like it, but which I did not see.

MAY 20.— Returning to Lake Umbagog this morning from Middle Dam, in company with Alva Coolidge, I obtained an adult female Arctic Tern from a

river-driver at the outlet. He assured me that he had killed it only a few hours before by striking it with his pick-pole as it was sitting on a boom of logs. Four living birds of the same species were seen at intervals through the greater part of the day, invariably on wing. Circling and coursing back and forth in their characteristic way they would work slowly northward almost to Sunday Cove and thence drift off southward to Metalluc Island and beyond, probably flying the entire length of the Lake half a dozen times or more. As they showed almost snow-white against the evergreen forest which lined most of the shores, we could often trace their flight for miles, sometimes when they looked scarce larger than snow-flakes and not unlike them, in the far distance. We saw them swoop down to the water dozens of times, but they never seemed to pick up anything nor, indeed, ever to descend quite to the surface. Their persistent search for food appeared to us pathetically hopeless, because of the entire absence of Ephemeridae and the extreme scarcity of small fishes, due to the depredations of swarming Pickerel. On skinning and dissecting the bird shot yesterday and the one killed by the river-driver to-day, I found that both had empty stomachs and were much emaciated.

May 23.— On this date Alva and I again visited the outlet where we found an Arctic Tern perched on a grounded snag that projected above the water. I shot it and not long afterwards killed another that was standing on a floating root a mile or more to the southward. Both birds were pitifully emaciated, although they had but recently secured a plentiful supply of food, perhaps not greatly to their liking, however. For the stomach of one was filled with beetles only, many of which were of large size, and that of the other contained a few beetles, several small black wasps, and the unidentifiable remains of a small fish, while the throat and gullet were literally crammed with wasps of the same kind as those in the stomach. These two birds were probably survivors of the flock of four met with on the 20th. Both proved to be males. Their sexual organs, like those of the two females killed, respectively, on the 19th and 20th, had not nearly reached the maximum stage of development, although all four were in full-nuptial plumage.

1903, June 15.— While going up the Lake by steamer to-day I saw three Terns flying about between the outlet and Pine Point. They were on wing over the same stretch of water when we returned half an hour later, and perhaps were obtaining some kind of food from its surface to which they descended a number of times while we were watching them. Once, when they came within one hundred yards of us, I made out very distinctly the dark almost sooty cast of the under parts, which distinguishes the Arctic from the Common Tern. Hence I referred them all, without hesitation, to the former species.

It is evident, as I have pointed out, that of the eighteen birds above mentioned not more than twelve can safely be regarded as different individuals, for six of these are likely to have been noted more than once. In view of this probability, the record may be revised and briefly restated as follows: —

Lake Umbagog.— One bird taken in June, 1879; five birds met with and three of them taken in May, 1881; three birds seen in June, 1903.

Richardson Lake.— Three birds seen and one of them taken in May, 1881.

In other words I have definite and certain knowledge of the occurrence of only nine Arctic Terns at Lake Umbagog and three at Richardson Lake, in the course of the past forty years. It would be interesting to know how many more have visited these Lakes within this period. My own spring visits, made chiefly to Lake Umbagog, have been too infrequent and irregular to entitle me to even a guess concerning a matter so dubious. But they have furnished a good deal of negative evidence tending to show that the birds do not appear with any frequency or regularity. Thus, I lived almost continuously in a houseboat on Lake Umbagog from May 12 to June 15, 1897, and from June 4 to 22, 1909, yet saw no Tern of any kind during either season.

Chlidonias nigra surinamensis (Gmelin).

Black Tern.

Rare transient visitor in late summer and early autumn.

Early in the afternoon of August 18, 1874, I was sailing in a small boat near the outlet of Lake Umbagog when I met with four Black Terns, all young birds in their first winter plumage. They were flying about in company, although not close together, apparently catching insects, for the most part rather high in air and frequently at least two or three hundred feet above the Lake. While thus engaged they looked and behaved not unlike Nighthawks, for their colouring appeared almost uniformly dark and their flight was tortuous and erratic. At other times they flew at lower levels and more like Swallows or Petrels. Sometimes they kept on almost straight, for considerable distances, with lowered heads, evidently scanning the water beneath. Occasionally one of them would descend to it rather abruptly in the manner of a Gull, but in no instance that came under my observation did the bird actually touch the surface, even with its bill. The only note I heard them utter was a shrill but rather feeble *kee-eep*. After watching them for about an hour I killed three of them, the fourth escaping unshot at. One hovered over another that had just fallen dead into the water, as Common Terns are accustomed to do under similar conditions. All three of the specimens that were secured are preserved in my collection. Although encased in fat, the bodies emitted none of that salty-fishy smell characteristic of Terns which

haunt the sea-coast. Their stomachs were filled entirely with insects, chiefly grasshoppers, with a few Coleoptera and Diptera.

Late in the afternoon of September 8, 1895, I was again sailing on the Lake near the outlet, when a Black Tern in immature plumage appeared and remained in sight for several minutes, flying about over a stretch of grassy marsh, frequently swooping down almost to the ground and then rebounding, as it were, to a height of thirty feet, or more like a playful Sparrow Hawk. It may have been catching winged insects just above the grass, although at the time I inferred that it was merely amusing itself.

As the records just given are the only ones supplied by my total experience in the Umbagog Region, I am of opinion that the species to which they relate does not occur there either regularly or very frequently.

ANATIDAE.

Mergus merganser americanus Cassin.

GOOSANDER.

Permanent resident; common at all seasons, abundant in autumn.

The Goosander [1] is the only representative of the Duck family, and also the only web-footed bird of any kind, which regularly inhabits the Umbagog Region during the whole year. Throughout the winter it is found in moderate numbers in the Androscoggin River below Errol Dam and along Rapid River all the way from Lake Umbagog to Richardson Lake, frequenting places in both Rivers where the current is swift and powerful enough to keep the water at all times free from ice. In spring and summer it is sparingly distributed over very much of the region, breeding, indeed, in almost every place where it can find suitable nesting-trees not far removed from waters well stocked with the fishes on which it preys. Thus in June or July one may come upon families of young with their mothers, not only in Lake Umbagog and neighboring reaches of the rivers that flow into or out of it, but also in ponds and lagoons of trifling size, lying far back in the forest,

[1] I prefer this name because it is not applied to any other North American bird, although an allied European one bears and has prior claim to it. The name Merganser, sanctioned by the A. O. U. Check-List and employed by most writers, seems less desirable because made to serve — with prefixes, it is true — for two other species found in New England. Sheldrake, the only name by which gunners know our Goosander, is used by them for the Red-breasted Merganser also and hence it is not distinctive.

and even near the sources of shallow, rapid-flowing streams embowered in foliage, and perhaps only a yard or two in width. Broods hatched along such water-ways begin, almost at once, to range up and down them for miles, sometimes following them, in the course of the first week or so, to distant lakes or larger streams into which they lead, but those whose life experience begins in ponds remote from other bodies of water and not much disturbed by man are likely to remain in them all summer, although ducklings of this species are capable, at a very tender age, of performing rather long overland journeys on foot whenever occasion requires. After they have become fully feathered and strong of wing, some of them may continue to inhabit or revisit waters of limited area, such as those just mentioned, but most of them remove to larger lakes, ponds, and rivers before the close of August. Throughout the autumn they are almost always found in flocks containing anywhere from three or four to forty or fifty members each, the usual number being from six or eight to twenty or twenty-five. The old drakes, however, are given to leading solitary lives during a considerable portion of the year. In spring they cease to associate with the females or to appear about the nests soon after, if not before, all the eggs are laid, although they continue to wear their handsome nuptial livery — more or less dulled and faded — up to at least the 20th of May. It is renewed in October — sometimes as early as the 5th of the month — when they mingle to some extent — although not freely — with the flocks of females and young. What becomes of them in July, August, and September I am unable to say, never having met with any of them, in any plumage, during these months.

Lake Umbagog sometimes literally swarms with Goosanders — or at least used to do so. They are most abundant late in September and during October, when I have seen as many as two or three hundred in the course of a single day. Although they frequent every part of the Lake, the north arm and the long central reach which extends from the Narrows to Pine Point attract by far the greater number. Many of those present at this season haunt the same shores or coves day after day and week after week, unless too much harried by gunners. These I take to be locally-bred birds. Others which seem to be equally at home in the Lake, yet often absent from it for days at a time, probably come from rivers and ponds at no great distance, where a portion of their time is spent. Still others behave as if they were strangers to the Lake and seldom remain in it for more than a single day. These last may well be passing migrants whose summer homes lie considerably further to the northward. I do not

remember, however, to have ever seen Goosanders circling high in air over Lake Umbagog, as so many other wild-fowl are accustomed to do when arriving at the end or departing at the beginning of extended migratory journeys. Being more at home in narrow and tortuous inland water-ways than are most of the others, they may follow these almost as closely on migration as they do at ordinary times, flying low over them and frequently alighting to rest and feed. That they commonly, if not invariably, depart from the Lake in this manner in autumn, going down the Androscoggin River past Errol Dam to the west and southwest instead of over the mountains directly to the south, is highly probable, while I know definitely that they come in early spring to the flooded great meadows in Concord, Massachusetts, not overland from the south, but *up* the Concord River which, below these meadows, flows north or northeast for a number of miles before emptying into the Merrimac.

Fortunately for the Goosander its flesh is not held in much esteem at Lake Umbagog. Few of the sportsmen who come there from a distance hunt it systematically or ever attempt to eat it. Most of the local gunners slay it ruthlessly, whenever opportunity offers, believing it to be a wholesale destroyer of Trout and young Salmon. During years long since past I used to devote a good deal of time to its pursuit, thereby learning at first hand something about its feeding habits and other characteristics. According to my observation it preys almost exclusively on Pickerel and Minnows in the Lake; on Chub, Dace, and Minnows in swift-flowing streams. What if it does take a few fishes valuable for human food? Most of these are cannibals and among the worst enemies of their own kind, the larger devouring the smaller in countless numbers. Of course no one is either permitted or inclined to kill fish on this account — much less to waste them when killed. Yet beautiful and interesting birds, which may commit depredations similar in character but comparatively trifling in extent, are outlawed and persecuted at every season, at least by sportsmen and fishermen. These men like to assert that Goosanders are unfit for food. The old birds certainly incline to be rather tough and rank-tasting, but the young when cooked by broiling over our camp-fires, were commonly quite as tender and almost as well-flavored as Black Ducks. Nor did the pursuit of them lack pleasurable interest and excitement especially when, as frequently happened, there were opportunities of stalking them as they were swimming and diving close to shore. If they were working along slowly it was comparatively easy to approach them behind rocks or low bushes, or by

crawling through tall grass. Even where there was but little cover, one might sometimes advance unnoticed by making short, quick runs when all the birds were under water, crouching low and motionless just before they began to reappear. But all such tactics, however skilfully and patiently employed, were rather more likely than not to lead to ultimate failure and disappointment, either because of the vigilance of some outlying and perhaps unnoticed member of the flock or, as happened still oftener, because all its members had passed beyond gunshot of the place where they were expected. In the latter case they might be stalked again, perhaps with better success or, if they were moving steadily and quickly in one direction, it was often possible to intercept them by making a circuit through the woods and taking a position on the shore far in advance of where they had last been seen. Then, after a brief interval of waiting, past troubles and vexations might be richly rewarded, by moments filled with intense excitement and tumultuous exultation as the stately birds came straight on in single file without pause or hesitation, their grey backs glistening, and their handsome reddish crests shimmering and glowing, in the bright sunlight.

Another method of approaching Goosanders which we practised occasionally with some success was that of paddling, or drifting with the wind towards them in a boat draped with grass and a few bushes. The proper management of the boat required uncommon skill and patience on the part of the paddler lying on his back in the stern; and coolness and good judgement on that of the gunner crouched among the foliage in the bow, for the former had to be guided by signals given by the latter who alone could keep the birds in view. If they remained well together, which was unusual, there was seldom any difficulty in getting near them, but if they were scattered widely or coming up from their dives in unlooked for places, as was oftener the case, one or another of them was almost certain to catch a glimpse of the man at the stern, when it instantly rose on wing with croaks of warning thereby alarming all the rest, perhaps when we were still one or two hundred yards away. They showed no fear or even suspicion of the boat as long as head on, apparently mistaking the slowly advancing mass of leafage for a floating island and often swimming straight for it. Sometimes ten or a dozen of them would come within a few yards of it, sporting with one another and diving, every now and then reappearing at the surface with writhing Pickerel in their bills. Whenever this happened, the successful fisherman was likely to be promptly chased, with much noisy thrashing of wings, by several of his companions, but

I never saw one robbed of his prize nor apparently any really serious attempt made to do so. Indeed, the pursuit seemed to be largely in the nature of a romp for which the fish served merely as an excuse.

If, as frequently happened, the birds were feeding in waters too shallow or rocky to be navigated, yet beyond gun-range from the nearest shore, my guide sometimes started them on wing in the direction of a point of land where he had left me concealed. We did not often resort to this plan, for the period of waiting was sure to be tediously prolonged and the chances of getting a fair shot to compensate for it, rather slight.

On October 21, 1890, I was entering Black Island Cove in a boat with my guide, when ten Goosanders rose from the water close in shore. After they had flown a considerable distance, two birds left the others and alighted far out in the Lake. Landing near the spot whence they had flown, I sent the man and the boat around to the rear of the island and crouched behind some large rocks at the edge of the water. After waiting a few minutes I began waving a branch covered with brilliant coloured autumn foliage. Attracted by this, the two Goosanders started towards me almost immediately, and kept on swimming in my direction until they had come within twenty yards of my ambush, when I rose and shot one of them. Despite the success of this experiment, I do not remember ever trying it with Goosanders on other occasions. It was suggested to me by the knowledge that Loons may sometimes be lured to their death in a similar way.

When the conditions were unfavorable for hunting Goosanders and other wild-fowl about the Lake, we often went in pursuit of them up one or another of the neighboring rivers, commonly choosing the Cambridge because of its frequent and abrupt windings and because it was then so seldom disturbed by sportsmen. Sitting with gun cocked and ready in the bow of a light canoe propelled tirelessly and silently by an experienced guide, it was a never-failing delight to glide smoothly on under overarching trees along this secluded and tortuous little stream, approaching each bend with expectant hope, usually unfulfilled. Sooner or later, however, we were almost sure to come upon one or more flocks of water-fowl, perhaps within easy range. Sometimes their croaking or quacking calls, or the loud thrashing of their wings, or a few of their recently discarded feathers floating down with the sluggish current, gave timely warning of their presence just beyond the next turn, but much oftener we remained unaware of it until, catching sight of the prow of the canoe and before seeing either of us, the birds rose hurriedly into the air. Then if they were within

reach, the gun broke the silence of the forest with its crashing double report, and after its victim or victims had been secured, we continued on our way. Thus might ten or a dozen miles be traversed in the course of as many hours with scarce a word spoken all the while. Whether or not Goosanders were found and killed, we were likely to get something else, perhaps a Black Duck or a brace of Wood Ducks, or two or three Ruffed Grouse, or, in the earlier times a few wild Pigeons. Even if no shot were fired all day, as sometimes happened, the trip never seemed dull or unprofitable, for the River at all times was fascinating, and we never failed to see interesting woodland birds.

Goosanders are peculiarly interesting as well as attractive birds, for they have many marked and complex, if not contradictory, traits of character and habit, some of which are not often displayed. When hungry they seek their prey with exceeding energy and tireless persistence. After it has been secured in moderate quantity they begin to lose interest in its pursuit and devote themselves partly to dressing their neat plumage or to sporting with one another — an amusement to which they are ever inclined. When gorged with food they become indolent and apathetic, basking or dozing in the sun for hours as they stand, rather erect, singly or in little groups, on isolated rocks or lumps of mud surrounded by water. Many of these are splashed with their excrement which, like that of most fish-eating birds, is fluid when voided and remains chalky-white for a long time after it has dried. They prefer such footholds to all others whenever they have occasion to go ashore, but sometimes resort to smooth, sandy, or muddy beaches, rambling about over them freely, if somewhat laboriously, walking with a waddling gait and with the long axis of the body nearly horizontal, much after the manner of domesticated Ducks, Anas spp. Their reddish, deepset eyes, abrupt manner of erecting their barbaric crests, and quick, nervous movements when swimming and diving, combine to suggest that they have hasty and fiery tempers. This can hardly be so since they are at all times gentle and considerate in their relations with one another and fond of the companionship of birds of their own kind. Yet they seldom assemble in really large flocks and still more rarely associate on intimate and friendly terms with water-fowl of other species, thereby differing from many species whose social tendencies have practically no bounds or preferences. Although in some respects exceedingly wary and timorous, Goosanders are not always quick to detect the presence of danger or wisely resourceful in their methods of avoiding it. Thus, while the appearance of a man in motion on either land or water is certain to make

them take flight, frequently when he is half a mile or more away, and invariably before he has come within shot-gun range, he may stand in open view and within a few yards of them, for almost any length of time, without attracting their attention, provided he remain absolutely immovable; while if he be perfectly concealed, the sound of his footsteps, even among dry sticks and fallen leaves, is not likely to seriously alarm them. Their comparative inattention to such sights and sounds — which the more observant Black Duck seldom fails to notice or to interpret rightly — is habitual rather than exceptional, even where the birds are frequently shot at. Apparently their eyes and ears lack keenness or, at least, discriminating powers of perception, and it also may be doubted if they have much quick intelligence. The latter inference almost ceases to be doubtful when we consider another characteristic habit of the Goosander's which probably leads to the destruction of more birds of its race than anything else it ever does or does not do. I refer, of course, to its fatuous tendency to pass within close gun-range of boats, moving conspicuously in open water, after rising on wing far in advance of them. It thus risks its life quite needlessly and by no means infrequently, not only in narrow water-ways where it could not pass otherwise without flying overland — to which however it is by no means averse — but also when coming out of coves hundreds of yards in width. Nor does it seem to profit by experience, for some flocks will run the gauntlet in the same way and in the same places, time after time, until most of their members have been shot down. If such behaviour on the part of a bird so fearful of man as is the Goosander does not imply plain dullness of understanding, I know not how else to characterize or explain it.

Most of the Goosanders met with in the month of August are young, already well grown and feathered, but lacking primary and secondary quills sufficiently matured to serve for purposes of actual flight. Yet, like the similarly handicapped Steamer Ducks of the Straits of Magellan, they can and habitually do, half-run, half-fly on the water, going at a speed so great that no boat or canoe can be rowed, paddled, or sailed fast enough to overtake them, and keeping it up without pause for distances of half a mile or more. Ten or a dozen of them, scudding thus in broad, extended front or in single file, one following directly in the wake of another, over the bosom of a calm lake or river, present a curious and interesting sight. They make almost as much sloshing noise as an old-fashioned, side-wheel, river steam-boat and the spray they throw up can be seen flashing white in the distance after the birds themselves have passed beyond

range of human vision. Adult Goosanders in full plumage which fall merely wing-tipped into the water when shot at are accustomed to either make off over it in a similar manner and with equal speed, or to go ashore and hide in grass or bushes or under prostrate logs, where it is difficult to find them without the aid of a dog. They seldom seem inclined to depend on diving as a means of escape, and when they do resort to it persistently are easily followed up and secured, for they do not remain long beneath the surface or practice the art of doubling on their pursuers with much skill or success.

I first heard of Goosanders in winter in the Umbagog Region in 1873 when, according to my journal, George Heywood, a young hunter living at that time on the shore of the Lake, assured me that they were always to be found "in small numbers" during the coldest seasons "fishing in eddies in streams."

Another note, written some twenty years later (in 1894), is to the following effect:— Goosanders continue to winter regularly here. Mr. Allen, the care-taker at Errol Dam, with whom I have just been talking about them, says that there are ordinarily about thirty birds; that they have there rather widely separated winter haunts, viz.:— Mollidgewauk Falls, the rapids just below Errol Dam, and those along Rapid River; that they fly back and forth at frequent intervals between these places, visiting each in turn; that they have been shot at a good deal of late with rifles in the Errol Rapids, but few if any have been killed.

From among the many passages in the journal and note-books relating to the habits or behaviour of Goosanders at Lake Umbagog, I select the following, reproducing them as nearly as possible in the words in which they were originally written:—

1888, September 7.— While sailing on the Lake this afternoon I discovered a brood of fifteen young Goosanders in Black Island Cove. They were no larger than Pigeons, yet unaccompanied by any parent bird. As I bore down on them they ceased swimming and began running on the water in their characteristic way, and so swiftly that I could not keep up with them, although I was in a light "Rob Roy" canoe, driving under full sail before a strong wind.

1888, September 11.— In Cambridge River where, just above "the Sluice," it winds through grassy meadows and is scarce more than a good-sized brook three or four yards in width, my guide and I came, this morning, upon a brood of seven young Goosanders almost fully grown but pinionless. They raced on up stream and we followed in our canoe, starting them repeatedly and shooting one of them. At length we lost sight of them altogether. Returning that same way some four hours later, I put my pointer dog ashore and let him range over the meadow, hoping that he might find a few Wilson's Snipe. This he

failed to do, but instead "nosed out" five of the young Gooseanders which were hiding close together in the long grass near the bank of the River. The guide and I thought they must have been there ever since we passed the spot on our way up stream.

1890.— Sometime in the summer of 1890, Aldana Brooks of Upton was crossing the carry that leads from Lake Umbagog to Richardson Lake, when a mother Goosander accompanied by a brood of young, scarce one half-grown, and quite incapable of flight, appeared in the road ahead of the buckboard in which he was riding. The old bird soon rose on wing and disappeared among the trees in the direction of Rapid River, here only a few rods distant. The young, crowding close together, ran on in advance of the horse — who was walking all the while — for more than half a mile, not once attempting to leave the road until they came to where it passes Middle Dam, when they scuttled down a bank into Richardson Lake and swam off along the shore. If the mother rejoined them here she was not seen to do so. I learned of this experience directly from Brooks, only a month or two after it had happened.

1907, August 5.— In a sheltered cove near Lakeside I came suddenly, this afternoon, on a female Goosander with six young. Although the latter were fully one half-grown and partly feathered, they with their mother at once left the water and went ashore on an elevated point densely covered with trees and bushes. After they had disappeared I paddled the canoe close in and waited quietly to see what would happen. At the end of about five minutes two of the young emerged from under some drift-wood lodged among the bushes and ran quite nimbly to the water. Entering it and diving at intervals, they swam out into the Lake where they were joined, about ten minutes later, by the mother and the remainder of the brood which she must have led across the wooded point where they all landed. She croaked repeatedly but the young made no sound that reached my ears.

1890, October 24.— Early this morning my guide, Jim Bernier, discovered a flock of Ducks in the Lake off Black Island. We thought at first that they were Scoters but they proved to be Goosanders. Presently they worked in close to shore where I attempted to stalk them, getting almost within shot before they swam out into the Lake again. Although there was a heavy sea running, they remained in deep, open water, four or five hundred yards from land, for more than an hour, frequently "bunching," but oftener swimming in small clusters with single birds scattered over the intervening spaces. They dove incessantly, all being sometimes under at once, although this was unusual. The flock contained twenty-one birds all of which appeared to be either females or immature males. At length they came in to some large rocks where they landed and began preening their feathers, one bird clambering to the top of a boulder that rose four or five feet out of the water and standing erect there, evidently on the watch. The occasion just mentioned is the only one that I recall when I have ever seen Goosanders fishing persistently at Lake Umbagog so far from shore or in such deep and troubled waters.

1898, August 28.— Late this afternoon my friend William Stone and I

were sitting within a yard of the water's edge on the outermost rocks at the northern extremity of Pine Point, when a flock of Goosanders appeared in the Lake, rounding another point about a quarter of a mile away. They came towards us almost as fast as a man advances when walking briskly, following closely every curve and indentation of the rocky shore, now in a dense cluster, next scattered rather widely, sometimes strung out in single file, frequently diving and occasionally thrashing the water with their wings. We had several excellent opportunities of watching the latter performance critically. During previous years I had more than once been well-nigh convinced that Goosanders seen indulging in it as they headed straight for shore were deliberately and systematically driving fishes into the partially land-locked shallows where they certainly cornered and captured them, shortly afterwards, in some numbers; but on the present occasion it could not have been intended to serve any such purpose, for while engaged in it the birds neither faced nor drew towards the shore, but kept moving on parallel with it in whatever order they happened to be at the time, first beating the surface with their wings and then just ducking under it for an instant, apparently merely in sport or to give vent to an excess of animal spirits, which is much the same thing. At least, the actions just described did not impress me to-day as having any significance deeper than this.

When diving for fish these birds often sprang forward and upward quite out of water and then, with backs strongly arched and heads and necks curved downward, cleft the surface so deftly as to scarce ripple it. Their dives were usually short and invariably made in the same general direction in which the flock continued to move. That is to say they never turned back on this course, although one might occasionally come up a little way out from shore and then paddle hurriedly in to rejoin its comrades.

At length the flock reached and passed us within three feet of the water's edge and *not over six feet* from where we were sitting wholly unconcealed. Yet, incredible as it may seem, not a single bird appeared to notice, or even to suspect, our presence. There were just twelve of them and for an instant, when they happened to draw together, a blanket of ordinary size would have covered every one. It was an experience not less thrilling than memorable to have wild-fowl so habitually wary and elusive almost within reach of one's arm, yet perfectly unconscious of human observation, and at this close range to look directly into their clear hazel eyes, to admire their soft grey body-plumage and to see their fluffy crests — carried low on the head and terminating behind the occiput in a point as fine and delicate as that of a closed camel's hair brush — glisten in the sunshine like floss-silk or change with the ever changing angles at which the light struck on or through them from deep reddish brown to tawny red, or to dull orange, or perhaps to wine-red. Beautiful creatures, they surely were not less unworthy than unconscious, of the cruel fate likely to befall some of them before the shooting season closed.

Just as the flock came abreast of us, all its members lowered their bills suddenly, as if at a given signal, and thrust their heads into the water until it

came about half an inch above their eyes. In this attitude, and without for an instant checking their speed, they swam steadily on for ten or twelve rods, until they passed out of sight behind a projecting point. I have seen Goosanders partially immerse their heads in this way on a few other occasions. They do it, no doubt, to look for fishes which they suspect may be lurking in the watery depths beneath when, perhaps, they are not hungry enough to be keen about diving for them unless first assured that such exertion is likely to be rewarded with success.

The birds seen this afternoon reappeared again after passing the second point and skirted the shores of a cove just beyond it. During the half hour spent in watching them they covered a distance of fully a mile. Goosanders are much given to ranging thus widely when in pursuit of prey. Indeed I have reason to believe that at Lake Umbagog they sometimes swim ten or a dozen miles in the course of a single day, fishing as they go and keeping most of the time within a few yards or even feet of the shore. No other water-fowl with which I am acquainted, except Red-breasted Mergansers, ever feed in this manner.

1898, September 9.— When I first looked out from my tent on Pine Point about half past five this morning, the Lake was enshrouded in fog and a Loon was calling somewhere in the distance. A moment later waves rolling out from the shore drew my attention to six Goosanders filing past within twenty yards of where I stood, close in under some large boulders. Shortly afterwards they swam across the middle of our boat-cove, ploughing deep furrows in its glassy surface. For a time their greyish coloured forms were so obscured and obliterated by the similarly tinted mists as to be quite invisible, although I could distinctly trace each furrow to its seemingly vacant and sharply-defined apex. The effect thus produced was interesting and also somewhat uncanny. Indeed had I not known from the first the origin of these conspicuous "wakes," I should have been puzzled to account for them, as the fog was not apparently dense enough to conceal any creature big enough to produce them.

Warren Noyes of Gorham, New Hampshire, a persistent and very successful duck-hunter whom I used to meet in autumn at the Lake, told me, in 1889, of a remarkable experience he had a few years before that time, with a Goosander. This bird was flying up the Androscoggin River towards the Lake, having apparently come from below Errol Dam, when he shot it. As it was dying, after having been taken into his boat, it vomited up a small *living* Pickerel. This incident, which I consider perfectly authentic, suggests an interesting possibility viz.:—that as the Goosander habitually carries fishes of various kinds in its gullet, it must fly with them rather frequently over dams, falls, and stretches of dry land, and may occasionally drop them, while still alive and essentially uninjured, in waters untenanted by their kind.

The Goosanders which inhabit the Umbagog Region scatter widely,

as I have said, at the beginning of the breeding season, no doubt because of the difficulty of finding hollow trees suitable for nesting purposes. For although the forests abound with dead and decaying trunks, only a very few of these afford cavities of just the right size and character. Most of the nests that I have seen or known about have been in large elm- or pine-stubs on the shores of lakes or ponds or on the banks of streams, usually where the land was low and subject to inundations. The entrance hole might be anywhere from ten or fifteen to thirty or forty feet above the ground and the cavity into it as much as eight or ten feet in depth, both being commonly of rather generous width. Such nesting places are often resorted to year after year, perhaps by the same birds, as long as they remain intact. They are by no means easy to locate, for out of hundreds of holes which look promising from the ground there may be not one which contains a nest. Hence it does not commonly pay to climb to them unless they are known to be occupied. Such knowledge is most likely to be gained by seeing the bird enter or leave her nesting-tree. Unfortunately for the collector she cannot always be driven from it, by any amount of noise or pounding, at least after she has begun to incubate her eggs.

George Heywood, the local hunter whom I have already mentioned, once saw a female Goosander fly into a hole in a tall stub. As the stub was unsafe to climb, he assailed it with an axe. The blows which he rained on the trunk failed to disturb the bird, and it was not until it came crashing down that she appeared — so injured by the fall that he easily caught her. I do not remember whether or not the eggs were broken in this instance, but my friend Colonel John E. Thayer has a full set which he and his guides obtained at B Pond some years ago by cutting down a tree which contained a nest. It happened to fall in such a way that not a single egg was injured.

During a collecting trip which I made to Richardson Lake in the spring of 1881, my guide, Alva Coolidge, found a Goosander's nest on May 19, in a hollow pine-stub standing in shallow water on the shore at the head of the Narrows. The hole descended about ten feet and the eggs, eleven in number, were lying on rotten wood at the bottom, surrounded by the usual bank of down plucked by the bird from her own breast. A new dam, erected at the outlet of the Lake not long before, had just raised the water about three inches above any previous maximum level, flooding the nest and submerging all the eggs. Yet the Goosander was sitting on them and the heat of her body had warmed not only them but *the water*, also. This nest had probably been occupied in former years, for someone had chopped a hole in the

side of the stub on a level with it and pinned a large chip over the opening. After removing this covering Alva looked directly in on the sitting bird. She made a low growling sound but refused to move until he poked her with a stick when she scrambled up the whole length of the hollow trunk and flew from its open top. He noticed that her breast was bare in places and her plumage generally much worn. There was a projecting knot about half-way up the stub which so narrowed the passage that the bird could scarcely squeeze by and which was covered with her down and feathers. On blowing the eggs I found that they contained small embryos.

Despite my long experience in the Rangeley Lake Region, the Goosander's eggs just mentioned are the only ones I have ever obtained there. Others offered to me by guides and hunters have been declined because of the hope of collecting some myself. My failure to do so has been owing in part to the primal difficulty of locating the nests and also the persistent ill luck attending my visits to those I had located. Either they did not happen to be reoccupied that particular year, or the tree had blown down, or some one else had forestalled me. As nearly as I can learn, the birds usually lay from ten to twelve eggs, completing their sets by the 12th or 15th of May. The young begin to be seen in the water about a month later. As broods apparently only a few days old are sometimes met with in August, it is probable that the females lay twice in one season when the eggs of the first clutch are taken or destroyed.

I have never been at Lake Umbagog sufficiently early in the spring to find Goosanders still engaged in courtship there. But I found a number of them devoting themselves to it in Fresh Pond, Cambridge, Massachusetts, on March 16, 1909, when the following account of it was written in my journal: —

The Goosanders avoided the ice and kept for the most part away from the Black Ducks in a large expanse of open water on the western side of the Pond. There were nineteen drakes in full plumage and twelve females or young males (not to be certainly distinguished from one another at such distance as we saw them this morning). For the first half hour or so most of the drakes were constantly engaged in courting the females. Unfortunately we were at this time on Hemlock Point and the birds fully half a mile away. But on the calm water and in the clear morning light they could be seen very distinctly through my strong glass, and I do not think I was in any respect deceived as to what they *did*, although their apparent silence may have been due to the fact that I was too far from them to hear notes which they may have uttered. Their behaviour was in some respects not unlike that of the Whistler drakes which I watched on February 27th, 1909. In numbers varying from three or four to ten or a dozen

they would collect about one or two females or follow the latter from place to place in single file, never interfering with one another in any obvious way or indulging in gestures which indicated animosity or sexual jealousy. But while thus engaged they were far more active and animated than Whistler drakes, swimming fast at all times and occasionally with amazing rapidity. Indeed I doubt if ever before I have seen birds of any kind swim so swiftly. The combined movements of such a group were often too sudden and bewildering to be easily followed or interpreted. But the general plan of action seemed to consist of a sort of dress parade, so ordered as to give the rival drakes an opportunity to display their respective charms of plumage and deportment to the best advantage and in direct yet not unfriendly competition with one another. Their evolutions were for the most part, seemingly regulated by established system or custom and some of them were strikingly beautiful. Thus eight or nine drakes, strung out in single file, but so close together that the bill of every one was almost on the tail of the next, would swim past a female at top speed and then turn instantly, each bird on its own axis, as if at some given signal, before starting back in reverse order, that is with the bird which had been the last now leading. I saw this done a dozen times or more, the distance traversed in a straight line on different occasions varying from ten to fifty yards. When a number of drakes started after a female that was swimming away from them, they usually overtook her quickly and passed her in the manner which I have just described, but sometimes the chase would continue for one or two hundred yards. When overtaken she usually stopped and seemed to watch the behavior of her admirers with some interest. During their evolutions one or another of them would occasionally thrust his head straight upward to the full length of the neck, but this position was never maintained for more than the fraction of a second. The distance was too great for me to make out if the bill was open or not. I saw no other unusual movements of the head and neck, which were carried much as on ordinary occasions, but perhaps somewhat higher or more erect. But I did see, and very many times, jets of water or spray rise into the air at the rear of drakes which were passing in line before the females. These were similar in every respect to those which the Whistler drakes throw up when "bleating"; but the jets produced by the Goosanders rose to a greater height and apparently were somewhat broader also. I could see them distinctly without the aid of my glass, at a distance of half a mile. That they are an essential part of the ceremonial of courtship and that the Goosanders, like the Whistlers, throw them up with a single vigorous kick of the foot (or feet) I have no doubt, although I obtained no direct evidence bearing on the latter point.

Mergus serrator Linné.

Red-breasted Merganser.

Not uncommon transient visitor in autumn. Of probable transient occurrence in spring, also.

The difficulty of distinguishing living females and young males of the Red-breasted Merganser from those of the Goosander, especially when the birds are at a considerable distance, is well known. Because of it I freely admit that some of my manuscript records of Mergansers seen at Lake Umbagog, and referred to the former species may not be wholly above suspicion, although I put strong faith in most of them. At least four admit of no possible doubt, being backed by the following specimens which are preserved in my collection.

8,108, ♂ juv. October 19, 1883. A solitary bird which I found swimming in the Lake near Black Island.

8,132. ♀ or juv. ♂ October 27, 1883. This was one of two birds which I shot out of a flock of twelve in the south arm of the Lake opposite Great Island. All the others were apparently of the same kind and in the same plumage.

9,613. ♂ juv. October 31, 1884. Shot in the Lake. There were two others with it, one of which I killed but did not skin.

12,001. ♀ October 13, 1886. With this specimen I shot two others which were not preserved. There were eight birds in the flock, all females or young males which looked nearly alike. They were in the south arm of the Lake near the mouth of Cambridge River.

The twelve Red-breasted Mergansers met with on October 27, 1883, alighted in the water near where my guide and I were eating our lunch on shore, opposite Great Island, and we started after them at once in a boat masked with grass and bushes. As they showed no fear of it we followed them for nearly half a mile before shooting at them, keeping all the while within thirty yards of them. They were busily engaged in fishing and behaved precisely as Goosanders are accustomed to do under similar conditions. Swimming close to the rocky shore and moving on rapidly in the same general direction, they dove incessantly, usually one after another, in quick succession. Every now and then one would come up with a fish in the bill when all the rest would start in pursuit, half-running, half-flying over the surface. Sometimes when there was no fish to serve as an incentive for such a chase, they indulged in it, nevertheless, evidently in a spirit of pure playfulness and with much noisy beating of wings. Or, one or another of them might lash the water continuously in one place for several seconds, thereby raising its body quite erect and almost clear of the surface. As the day was perfectly calm they made a tremendous noise by such use of their pinions. Also they croaked a good deal, nearly like Goosanders. There was a single Golden-eye or Whistler keeping company with them.

On a number of occasions besides those just mentioned, but never more than twice or thrice in the course of a single season, I have seen Mergansers which appeared to be of this species swimming in the Lake or flying over it during the month of October, not always noting them, however, especially when I was not quite sure of their identification.

On May 23, 1881, I was in a boat off the outlet of Lake Umbagog in company with Alva Coolidge, when two female "Sheldrake" passed us on wing within short gun-range. They looked much too small for Goosanders and Alva insisted that they could not belong to that species with which he is very familiar. My own impression was that they were Red-breasted Mergansers.

Although I have never been able to learn that the Red-breasted Merganser ever breeds in any of the Rangeley Lakes, there is no apparent reason why it may not do so occasionally, for it is known to nest rather commonly about similar inland bodies of water in other parts of Maine.

Lophodytes cucullatus (Linné).

HOODED MERGANSER. WIGEON.

Summer resident, formerly abundant, now rarely seen.

When I first visited the Umbagog Region, and for several years afterwards, Hooded Mergansers bred abundantly there. It was difficult to locate their nests, and adult male birds in full-nuptial plumage were not often seen after the eggs had been laid, but the sombre-hued females occurred commonly enough in May and still more numerously in June, when most of them were followed by broods of downy young. During the latter month, indeed, there were no shallow, reed-begirt coves about the Lake, and few forest-fringed reaches along its connecting rivers, where one need seek long in vain for such an interesting little family. The young usually remained with their mothers until they were about two thirds grown when, late in July or early in August, they were left to fend for themselves and scattered about singly, diving for food in muddy shallows and seeking shelters among neighboring grass or reeds. By the middle or last of August, when most of them had become strong of wing and sufficiently wary and experienced to be no longer easy of open approach, they were accustomed to congregate very numerously in certain parts of the Lake, many coming to it from smaller bodies of water at no great distance, which afforded attractive breeding-places but not an

inexhaustible food-supply. At this season, and for a month or more later, the ponds in the marshes at the mouth of the Cambridge River were visited by a score or more of them daily and upwards of one hundred, or even twice that number, might be found in Leonard's Pond, near the outlet of the Lake, provided no gunner had passed that way earlier in the morning. We used to obtain as many of them as we required for food by stationing ourselves where they were likely to pass on leaving the Pond and then sending the guide around through the woods to its opposite shore. When he showed himself there, they would rise in quick succession and, after circling once or twice in a confused swarm to get well above the water, would come streaming out towards the Lake flying singly or not more than six or eight in actual company, and with such exceeding swiftness that even the fairest shots were very often missed. On other occasions we stalked and killed them as they were swimming close in shore, or brought them down from on wing just after they had left the water when, in our canoes, we came upon them suddenly on rounding a point projecting into the Lake or a sharp bend in some river or creek. The flesh of young birds taken in early autumn was quite as tender and well flavored as that of Wood Ducks or Black Ducks, a fact generally known to native hunters about the Lake, but commonly discredited by visiting sportsmen, most of whom regarded Mergansers of whatever age or kind unfit for food, and hence either left them unmolested or threw them away after shooting them. The latter practice was followed by a gang of vandals who began visiting the Lake in 1875 and came to it every autumn after that for ten or a dozen years. Being excellent shots and persistent hunters, as well as merciless and wanton slaughterers, they carried death and destruction among the ranks of the water-fowl, making no use of many, if not most, of those they killed. Hundreds of Hooded Mergansers were slain and wasted by them during the first two or three seasons, and before their visits ceased, the species had become the least, instead of the most, numerously represented member of the Duck family breeding in the Umbagog Region. Since then it has gone on diminishing in numbers, until now it is well-nigh locally extinct. Elsewhere throughout its summer range in New England there has been corresponding and contemporary decrease due in part, without question, to excessive shooting, although other and more obscure causes must have contributed to it.

Since the year 1889 I have noted the Hooded Mergansers at or near Lake Umbagog on the following occasions only: — Four birds on October 16, 1890; six on October 16, 1891; one on September 3,

another on September 11, 1894; at least four and possibly as many as six between June 3 and 12, and six between September 1 and 30, 1896; six or eight between May 12 and June 8, and nine or ten between September 1 and 30, 1897; about twenty between September 15 and 24, 1898; thirteen between September 6 and 14, 1900. My only record made since 1900 relates to a female accompanied by a brood of young which Alva Coolidge saw in Cambridge River in June or July, 1907.

To return to the earlier years when Hooded Mergansers were still plentiful at Lake Umbagog. It was their custom in August and September to fly at evening to the northern end of the Lake, wholly deserting its central and southern portions between sunset and dark. Taking advantage of this habit the gunners would sometimes lie in wait for them on a little rocky island in the Narrows, and shoot down a few of the passing birds. I tried it only once — on the evening of September 11, 1873 — when, as my notes state, "flock followed flock in rapid succession" for half an hour or more, although none came sufficiently near my place of concealment to give me a fair shot. There was, of course, a return flight soon after daybreak each morning. While the total number of Hooded Mergansers then killed in any one season about the Lake was comparatively trifling, the birds were constantly disturbed by the sound of guns after the shooting opened on September 1st. For this reason, no doubt, they appeared less numerously in the Lake, and more so in secluded ponds and rivers, as the month wore on. Towards its close most of those locally bred were likely to disappear altogether from the region — going I know not whither, for the Hooded Merganser is seldom seen in southern New England before November. Nearly all the birds met with in or about the Lake after October 10 seemed to be migrants from regions lying further north. It was unusual to see more than five or six together or a greater number than ten or a dozen in any one day. The latest date of their seasonal occurrence furnished by my notes is October 29, 1884. No doubt a few sometimes lingered on into November, but the guides had no knowledge that any ever occurred in winter in the rapids of the Androscoggin, where Goosanders were always present from December to March.

Although Hooded Mergansers which had been bred in the Umbagog Region rarely permitted a man whom they could see plainly to approach them closely, either by land or in a boat, it was not difficult to stalk them when they happened to be near shores screened by dense foliage or by tall grass. Having passed the spring and summer in

waters where no one save an occasional fisherman ever came to disturb them, they did not seem to realize that the snapping of dead twigs or the rustling of dry grass, heard close at hand after the shooting season had arrived, were sounds that could not safely be ignored. Nor were they always heedful of the risk of passing over or near a boat, especially if it chanced to be at the entrance to a cove or in some narrow channel along which they were accustomed to fly. Like the Goosanders, they preferred to follow such water-ways, wherever possible, and seldom took short cuts over wooded or even marshy land except when moving high in air. Far otherwise in some respects was the behaviour of the migrants which appeared in October, for these were ever on the watch for danger and wisely resourceful in avoiding it. So very keen and alert were their senses of sight and hearing that the merest glimpse of a human form or the least unusual noise in a neighboring covert instantly attracted their attention and caused them either to rise on wing or to swim quickly far out from shore. Never in all my field-experience have I met with warier birds of any kind. Time and again I tried to creep within gunshot of them when the conditions favored the attempt, but invariably without success. Such failures were peculiarly exasperating when, as often happened at this season, the flocks included drakes in fully mature plumage — especially coveted as specimens for my collection. On October 23, 1889, I found three of these with three plain brown birds in Leonard's Pond, and on the next day following a flock similarly composed and perhaps the same, in Rapid River. On the former occasion I watched the birds for upwards of an hour without seeing any of the males open their crests which, indeed, were kept folded back and down so closely as to be scarcely more noticeable than those of the females, the only white left visible being a little appearing on the side of the occiput in a bar so narrow and inconspicuous that it might easily have been overlooked. Nor did I see more than this on the 24th, until at length a bird who had begun to suspect my presence uttered a cry of warning which alarmed all the rest, and at the same time spread his superb crest to its fullest extent, showing it just as it is commonly represented by plates and mounted specimens. On no other occasion have I ever seen a living and fully mature drake thus display his crest.

If Hooded Mergansers ever prey upon fish in the Umbagog Region, my experience has failed to furnish any indication of the fact. I have watched them pulling up and apparently devouring the roots or stems of water-plants of various kinds, and have found traces of similar vegetable food in the stomachs of specimens that I have killed. As a rule,

however, the latter contained little or nothing save the remains of aquatic insects and their larvae with which some of them were crammed and among which the larger species of Dytiscidae often figured prominently. Observation of living birds further inclined me to believe that they were accustomed to devote most of their time and energy to the pursuit of such ignoble quarry, obtaining it by diving in water varying from two to six feet in depth, or seeking it in grass-grown pools or creeks where the muddy bottom could be reached by merely immersing their heads and necks. Bold, rocky shores fronting on deep water seldom attracted them, and I cannot remember that they were ever seen swimming in foaming rapids or far out in the Lake. It was not unusual to find them in remote depths of the forest, frequenting ponds only an acre or two in extent or streams no more than a few yards in width, where they were given to basking in the sun at mid-day on floating logs. From such secluded places they commonly flew at evening to the Lake, or perhaps to the marshes at its outlet if there happened to be plenty of water among the grass, heralding their approach by the peculiar hurtling sound of their wings, which could be heard half a mile away when the air was damp and still. If they came into the marshes with the intention of alighting, it was likely to be on a downward incline and at a speed so great that they might pass through a perfect fusillade of shots fired by men who were experts in the use of the gun, yet escape wholly unscathed. Indeed it was only very rarely that a bird was ever brought to bag under such conditions. In my opinion there is no other water-fowl found in eastern North America which can cleave the air with anything like the velocity that the Hooded Merganser frequently attains. It would be interesting to see a Duck Hawk try to overtake one. He might succeed, but certainly not without exerting his remarkable powers of flight to the very utmost.

Bottle Brook Pond used to be a favorite resort for Hooded Mergansers, particularly in late summer and early autumn. Whenever at these seasons I approached it cautiously and peeped out through the luxuriant foliage that screened its shores, the first animate object that caught my eye was likely to be a Merganser swimming rather slowly, with crested head carried low and body so deeply immersed that but little more than the contour-line of the brown back showed above the surface. Moving thus it might skirt the reedy margin of the Pond or cruise back and forth over a few yards of open water just beyond the outer ranks of lily-pads, every now and then making a short dive in the manner of a Grebe — that is to say with admirable deftness and with-

out seeming effort, or the least splashing sound, or any but the very slightest agitation of the surface. Just as the Merganser disappeared it was likely to raise its tail in a leisurely way somewhat as a diving Muskrat may elevate his rump after his head and body have become lost to sight. If a female or young bird, it would have a pointed crest which gave the head a rakish look and glowed with amber or coppery brown tints when the sunlight struck through the silky fringe of feathers at just the right angle. Presently other Mergansers might appear, one after another, until a dozen or more were in sight scattered about over the Pond, each apparently preoccupied with its own concerns and taking no heed of what the rest were doing. Occasionally several birds would linger for minutes at a time within a rod or two of my place of concealment. The pleasure and interest of watching them often absorbed my attention for upward of an hour, beside disinclining me to shoot at them, especially if there were also Black Ducks and Wood Ducks in the Pond. Although the Mergansers might mingle casually with these and other water-fowl, they kept for the most part by themselves, both in the water and on wing.

According to my experience every Hooded Merganser possessed of sound and fully-feathered wings invariably makes prompt use of them when seriously alarmed, rising into the air rather more quickly and easily than Goosanders are able to do, yet not without first trailing its feet — and perhaps the abdomen also — in the water for a yard or more before clearing the surface, especially if there be no wind. Birds with broken wings, or without the wing-quills essential to flight, habitually resort to diving when hard pressed, but I have never known them to seek safety by going ashore to hide in grass or bush. Young birds become expert divers at a tender age, as the following extracts from my notes attest: —

1880, June 11.— In the south arm of the Lake we found a female Hooded Merganser with six small ducklings swimming near shore among flooded grass. As we approached them closely in our boat the mother flopped heavily off over the surface of the water uttering a succession of warning croaks. The young scattered in every direction, diving so adroitly and persistently that we failed to catch any of them. All that we pursued were soon lost sight of among aquatic plants beneath the floating leaves of which the little creatures probably sought shelter, perhaps exposing only their bills, until after we left the spot.

June 24.— Not far from where the young Hooded Mergansers were seen on the 11th we met to-day with what must have been another family since it contained seven young about one quarter grown. One of these being hampered with a broken and distorted leg, was easily secured. The others dove so vigorously and persistently that it was impossible to lay hands on them.

Respecting the behaviour of Hooded Mergansers engaged in courtship I have, unfortunately, nothing whatever to say, never having witnessed it. Apparently their nuptials were consummated before the earliest dates of my arrival at the Lake in spring, although between May 10 and 25 I sometimes — but not often — saw mated birds together. If on wing one always followed the other closely, the female usually leading, but occasionally bringing up the rear. After the close of May no drakes were ever seen again before the middle of October. What became of them during these interims was a mystery which the guides were unable to explain and which remains unsolved. It is possible, of course, that they escaped notice, or at least recognition, by donning a plumage similar to that of the females, as the males of many other Ducks are known to do in summer, but no birds thus attired ever came under my conscious observation at the Lake or elsewhere. After the drakes had disappeared it was not unusual to see two, or even as many as three or four, plainly-coloured birds which appeared to be females, flying in company, perhaps circling about some hollow tree which contained one of their nests or that of a Golden-eye. They were commonly very noisy while thus engaged, one after another uttering a cackling *ca-ca-ca-ca-ca-ca-ca* closely resembling the clamor which Golden-eyes make on similar occasions, but softer in quality and somewhat less loud. These circling flights and peculiar cries seemed to be indulged in oftenest during the first three weeks in June, when incubation was already well advanced. Later in the summer and throughout the autumn we rarely heard any vocal notes other than the guttural croaking ones which startled birds often emitted as they rose hurriedly on wing, and which were very like those of Goosanders, only feebler and less raucous. One of the old drakes seen in Rapid River on October 24, 1889, uttered a loud, explosive *kok* followed by a prolonged, rolling *o-o-o-o-o-oc* or *kr-r-r-r-r-r*, hard and woodeny in quality, and not unlike the snoring sounds made by Leopard Frogs. As the outcry occurred just as the bird caught sight of me I supposed at the time that it was intended to warn his companions of my presence, but the fact that it also accompanied a full display of his handsome crest afterwards led me to wonder if it may not sometimes serve in connection with the ceremonials of courtship — a question which remains unanswered in my mind, for I have never heard anything quite like it since.

Although broods of young Mergansers were occasionally met with about the Lake as early as the middle of June, I have no record of a nest which held its full complement of eggs before May 25th. One found on that date in the year 1880 is referred to in the journal essentially as follows: —

As Alva Coolidge and I were lunching in a little cove of the Lake not far from the head of Great Island, we saw a female Hooded Merganser fly to an elm-stub about forty feet tall which, with a few others, stood just outside the wall of living forest in shallow water. After encircling it several times on set wings like a soaring Hawk she alighted near its top on the edge of a hole which has been formed by decay where a branch had broken off, and entered it at once but not without difficulty for, as we afterwards ascertained, its diameter was no greater than that of a man's closed fist. On reaching the tree we pounded its base with the head of an axe, making the cove ring with the sound of the blows, although they failed to start the Merganser from her nest. She left it almost immediately, however, and flew off out of sight over the Lake when Alva began to ascend the stub. It was so frail and rotten that it trembled alarmingly — and made me fearful for his safety — as he climbed upward, but he finally got to the hole without mishap and upon enlarging it with his axe, found that it led into a larger cavity which extended downward for a distance of three feet. At the bottom, embedded in and, for the most part, also overlaid by, down plucked by the Merganser from her breast, were eight of her creamy white eggs. Some of them had been incubated several days; others were quite fresh with yolks pale orange in colour. Like all the eggs of this species which I have ever blown, they were difficult to drill because of the extreme thickness and hardness of their shells. After we had taken them and gone further up the cove, the bird returned and circled many times about her dismantled nest, but we did not see her reënter it.

The occasion just mentioned was the only one on which I ever actually participated in the taking of a full set of eggs of the Hooded Merganser, but I have seen at least half a dozen other holes in which birds were thought to be nesting at the time or known to have bred in former years. Most of them were not less than thirty or forty feet above the ground or water, in stubs so weakened by decay that they were unsafe to climb. One, however, furnished an exception to this rule, and its examination resulted in a rather interesting experience which is thus recorded in the journal: —

1876, June 3.— Accompanied by an intelligent river-driver who liked to climb trees, I was searching for Ducks' nests this morning in the flooded stub-forest at the outlet to the Lake, when we noticed a promising-looking hole, only about fifteen feet above the water, in a dead maple that stood apart from the other trees, and indeed well out in the open, submerged marshes. The very first rap with the butt of an oar on the dry, resonant trunk was followed by a scratching sound inside, and the next moment a female Hooded Merganser showed her head at the hole. After a brief struggle, during which she clasped its lower edge with her feet, she emerged from it and launched into the air. As she was flying off I shot her. After we had picked her up and returned to the stub, my river-driver began to climb it when, to our surprise, there was again

a scratching sound of claws from within, and another Merganser came out and took flight. As this second bird was struggling to free itself from the hole, I had a good if brief view of it within fifteen feet. As far as I could see it did not differ appreciably in size, colour, or markings from the one I had killed. When I dissected the latter I found that she had laid no eggs that season, but would have begun doing so in the course of another week or two had she continued to live. The cavity in the maple was some three feet in depth and of generous breadth, except at the entrance which was only ten inches across. It was admirably adapted for a nesting-place, and had probably been chosen for that purpose by at least one of the Mergansers we found in it, although what the other was doing there we failed to comprehend. There were no indications of a nest, but merely a few pieces of rotten wood at the bottom of the hollow.

On the occasion just referred to, I was puzzled, as the journal entry notes, to account for the presence in the same hollow trunk of two Hooded Mergansers, both of which appeared to be females, but subsequent experience, already related, has shown that the birds of this sex are much given to consorting together during the breeding season. It is not improbable, moreover, that they sometimes lay their eggs in each other's nests, and certain that they deposit them rather frequently in those of Golden-eyes. Several mixed sets which included unmistakable eggs of both species in varying numerical proportion have come under my personal observation, and others have been reported to me by guides and hunters at the Lake. In all such cases the nest was known or thought to belong to a Golden-eye, and in most of them her eggs outnumbered those of the Merganser. In respect to the latter detail, however, an interesting exception to the rule was afforded by a nest which my assistant, Mr. Watrous, visited on May 26, 1897, in the top of a tall larch-stub standing in a flooded meadow near the Androscoggin River a mile or two above Errol Dam. As he was climbing the tree, a female Golden-eye flew from the hole, but the set of eight eggs which it sheltered included only two which she had laid, the other six being without question those of the Hooded Merganser. These eggs were taken and are now in my collection. A year previous to this (on June 5, 1896), Mr. Watrous and I had seen a female Golden-eye flying about the tree, and in the hole had found an addled egg and the shells of others from which young had probably escaped not long before. A composite set more remarkable than any of those just mentioned was found about the time I first began visiting the Lake, in a hollow stub near the Narrows. It consisted of several eggs of the Golden-eye, about an equal number of those of the Hooded Merganser, and two of the Barred Owl. The Ducks' eggs were together and intermingled, those of the Owl just beneath them and embedded in

rotten wood. The latter eggs were addled, of course, and without doubt had been deserted by the bird that laid them, before either of the Ducks entered the hole. I was not fortunate enough to see this curious clutch, but the guide who took it and afterwards described it to me was perfectly familiar with the eggs of all three of the birds, and also a man whose word I have never found reason to doubt.

Anas boschas boschas Linné.

MALLARD.

Transient visitor, rare in spring, not uncommon in autumn.
May–September 18–October 31.

My only spring record for the Mallard relates to a handsome drake which was shot in Lake Umbagog some time in May, 1887, by Daniel Heyward. He sent it in the flesh to Mrs. Charles Bartlett of Newry, who mounted it. I saw it in her little collection of local birds in Poplar Tavern, a few months later. Females and young males used to appear rather regularly, if only sparingly, in autumn, sometimes late in September, but oftenest during the month of October. They frequented shallow coves of the Lake, grassy reaches of Cambridge and Rapid Rivers, and small forest-bordered ponds or lagoons, such as those scattered throughout the bottom lands of the Lower Magalloway, occurring for the most part singly and usually in company with Black Ducks, although such was not invariably the case. Thus on October 22, 1883, I found three feeding together and shot two of them, in a little pond near where Bear River enters the Magalloway River, and on October 10, 1885, two were killed, I think at one shot, by Warren Noyes in Bottle Brook Pond. They were less wary than Black Ducks, and when not associating with these, could be stalked without much difficulty, even where there was little cover. No drakes in full-nuptial plumage ever came under my personal observation at this season, but they were occasionally seen by others. One was shot in B Meadows just above the forks of Cambridge River, late in October or early in November, about the year 1890, by my friend Mr. Charles U. Sherman. While I do not happen to know of any very recent instances of the occurrence of Mallards in the Umbagog Region, it is probable that they continue to visit it, perhaps quite as frequently as in former years.

During October, 1906, a flock of Mallards containing about twenty birds, among which were several drakes in full-adult plumage, frequented the shallow bay near the outlet. Here they were seen day

after day for two or three weeks by Drs. Draper and Billings and their guide Alva Coolidge. Every conceivable plan was tried to get a shot at them, but without success, for the birds kept well out from the grass in open water, and could not be closely approached. Alva has never before known so large a number of Mallards to occur together in Umbagog. He has seen two or three birds killed within the past few years, and thinks they are more numerous than formerly.

Anas rubripes rubripes Brewster.

RED-LEGGED BLACK DUCK.

Transient visitor, common in late autumn.
September 27 (1889)–October 15–November —.

Although there can be little if any doubt that this large and peculiarly-coloured race of the Black Duck passes through the Umbagog Region in March or April on its way to breeding-grounds lying still farther northward, I cannot state definitely that such is actually the case, never having had opportunity to obtain evidence of the fact by visiting the region sufficiently early in the season. Among the birds breeding there in May or June, I have seen none which showed bright red legs or conspicuously yellow bills, although very many have been observed under conditions favorable for close and accurate observation of these parts. True *rubripes* occurs commonly enough in autumn, however. One specimen of it in my collection was shot on September 27, 1889, but I have noted no others at any date earlier than October 8th. By the middle of the latter month, the red-legged ducks appear more or less numerously and before its close sometimes rather plentifully, largely replacing the locally bred, brown-legged birds, most of which go south before November. In the Umbagog Region the two forms seldom if ever intermingle freely, nor are their habits quite the same, while they differ so appreciably in size and general colouring that one may often distinguish them at more than gunshot distance, without reference to the colour of either legs or bills; *rubripes* is not only the larger, but also much the greyer of the two, especially about the head and neck. Keen-eyed guides of my acquaintance have long been accustomed to note these differences, and to believe with me that the "Labrador Ducks," as they call the Red-legs, belong to a northern-breeding race wholly unrepresented in the Umbagog Region during the summer months. It is said that the Red-legs sometimes assemble in flocks of hundreds about the outlet

of the Lake, after its coves and marsh-bordered lagoons have frozen over in November, but I have rarely seen more than ten or a dozen of them together, or more than fifteen or twenty in any one day.

According to my experience they are tamer than the locally-bred Black Ducks, and less given to haunting small and secluded ponds. I have found them oftenest in the Lake and in large flooded meadows along the Androscoggin River between the mouth of the Magalloway River and Errol Dam.

Anas rubripes tristis Brewster.

BLACK DUCK.

Summer resident, formerly abundant, still common.
April–November.

As I have said, the Black Ducks which inhabit the Umbagog Region in summer apparently belong, without exception, to the comparatively small, dull-coloured, brown-legged race which breeds throughout New England and the Maritime Provinces, and for which I proposed the name *tristis* several years ago. In Massachusetts the summer resident birds are among the very first of their tribe to revisit inland ponds and meadows in spring. Probably the same thing obtains at Lake Umbagog, although I do not know that such is the case. However it may be, Black Ducks of one or the other kind regularly appear there in April, sometimes early in the month, and invariably when the region is still buried deep in snow and the Lake encased in thick ice. Even thus early there are always reaches of open water in sheltered coves that face the south, or in rivers having a swift current, where the birds can swim and feed. With these they must perforce content themselves, until the ever-increasing heat of the sun and the disintegrating influence of strong southerly winds combine to free the region generally from ice and snow. This may happen any time late in April or the first two weeks in May, perhaps in the course of only a few days. Before the change takes place the hardy Black Ducks engage in their interesting circling nuptial flights, and soon after it is consummated they begin laying their eggs. As recently as the close of the last century they nested in most of the wooded islands in the Lake, in grassy or brush-grown meadows bordering many of the brooks that empty into it or into its connecting rivers, and about practically all of the innumerable little ponds and bog-holes hidden in the depths of its encircling forests. No one of these islands, meadows, or forest-pools was ever

known to harbor more than a single breeding pair, while no more than one bird, and that a female, was likely to be found anywhere near a nest which contained a full clutch of eggs. For about the time the ducks ceased laying, they were commonly deserted by the drakes,[1] who banded together in places more or less remote from the nests, and apparently had nothing further to do with their mates that summer unless, perchance, their procreative services were again required, as happened occasionally, no doubt, when, because of the loss of her first clutch of eggs, the female laid again. I remember seeing eighteen of these "grass-widower" males in one flock, and sixteen in another, on June 9, 1872, in B Meadows just above the forks of Cambridge River. On May 29, 1879, two flocks, one of which contained about twenty birds, were met with in these same meadows. It was unusual, however, to happen on such large gatherings of drakes, and the females were so widely dispersed and so addicted to sticking closely to their nests after incubation had begun that they attracted little notice during the latter part of May or early in June. Indeed it was not until about the middle of the latter month, when most of them brought out their young, that one realized how numerous they were. During the next four or five weeks, mother birds with their broods of down-clad ducklings might be encountered almost anywhere about the shores of the Lake or along the mosquito-infested stretches of its tributary streams. When openly approached by men in boats, yet not too closely pressed, the mother usually sought to escape observation by sinking deep in the water and flattening her head and neck on its surface, as she made for the nearest grassy shore, swimming slowly and silently, with her young crowding so close about and behind her that parent and offspring appear to form a single animate object, lacking definite shape and suggestive of some nondescript, furry creature gliding smoothly and mysteriously over the water. If, at length, the mother came to realize that these tactics had failed to serve their intended purpose, she would promptly abandon them and simulate the behaviour of a slightly-wounded bird, beating the water with her wings and quacking hoarsely. Meanwhile the young would scatter more or less and swim quickly ashore, perhaps calling to one another. After they had landed and hidden in grass or other herbage, it was useless to look for them, even on islands only a few yards in extent.

[1] The only exception to this rule that has ever come under my personal observation will be noted later, in connection with the description of a nest found in 1897. Although the thirteen eggs which it contained had been incubated at least two weeks, the drake was frequently seen near the nest with the duck, both on wing and in the water.

Nine young, composing a brood which Alva Coolidge and I met with on June 21, 1880, as we were paddling up Cambridge River, landed and ran back into the woods before we got within gunshot of them in our boat, but shortly after we had passed they reappeared and took to the water again. Although no larger than Robins, they were unaccompanied by any older bird and apparently were shifting for themselves.

In Cambridge River, not far above its mouth, on August 10, 1896, I came upon a brood of seven young Black Ducks about three quarters grown and unable to fly. No older bird was seen with or near them. As I approached in my boat, they all went ashore together and disappeared among some rank grass, but instead of stopping and hiding in this, as I expected, they kept on through it for a distance of fully thirty yards, presently reappearing in a flooded meadow beyond where they scuttled off over the water, using unfledged wings as well as the feet, when I showed myself on the shore.

As I was returning to Lakeside in my canoe, in the late afternoon of June 13, 1903, I surprised a mother Black Duck with her brood of six young (which appeared about a week old) swimming close to a bed of half-submerged grass in Cambridge River, not far from Peaslie's Spring. The young scattered at the first alarm, and running on the surface of the water after the interesting manner of all young wild Ducks, quickly disappeared among the grass. The mother rose with loud quacking, and flying rather heavily or, at least, slowly, circled around me just out of gunshot, finally alighting some distance off and well to one side of my course. It was raining at the time and there was a strong southeast wind before which I was scudding under reefed sail. On approaching the same place this evening, June 14, 1903, paddling quietly over perfectly calm water, I heard the thin, feeble peeping of the young which appeared to be well scattered among the flooded grass. *Peep-peep-peep-peep-peep-peep* they called to one another (or to their parent), almost exactly like young tame Ducks. Presently the mother rose at some distance off, close to the edge of the woods. Adopting tactics somewhat different from those employed yesterday, she preceded me for a considerable distance, by a succession of short flights, alighting always in the River, directly in line with my course, and taking wing again just before I got within long gun-range. It seemed evident that she was trying to lure me away from her young, although she made no pretense of being wounded.

The mother duck often deserts her young when they are only half-grown, and invariably does so long before they are able to fly. If

the brood is not broken up by gunners, its members commonly remain together through the entire summer and most of the autumn also. After becoming strong of wing they take long flights in quest of food or to avoid molestation, visiting ponds or marshes where they mingle for a time with other birds of their own kind, but every few days they are likely to return to haunts exclusively their own and perhaps those in which they were reared. Such, at least, was the habit of the Black Ducks that inhabited the Umbagog Region, when I used to spend a month or more almost every autumn thirty or forty years ago. My guide and I were then accustomed to watch their movements closely — for obvious reasons. By so doing we learned that although they sometimes congregated in large numbers where food was especially plentiful and easy to obtain, they came to and left these places in separate flocks, each of which had its own characteristic times and methods of approach and departure and its own chosen lines of flight. If a gun were discharged into or near such an assemblage, all the birds would rise at once and perhaps start off in a single great swarm, but ere they had gone very far the birds which belonged together would rejoin one another in the air and pursue an independent course. Most of the flocks contained from six or eight to twelve or fifteen birds each; comparatively few more than twenty-five or thirty; still fewer as many as fifty; while it was rare to meet with one having seventy-five or a hundred. The larger flocks occurred quite as often in September as in October, and apparently were composed entirely of Ducks belonging to the small, brown-legged race which seemed perfectly familiar with the region, and content to abide in it for weeks at a time, if not too much persecuted. Hence I am of opinion that they were commonly made up of broods reared in or near the Lake which, contrary to their usual custom, had united for social or other reasons. Some flocks, however, may also have included migrants that had come from regions lying still farther northward. Oddly enough there were unsocial birds, by no means few in numbers, who spent the autumn singly or in couples, never intermingling, except casually and temporarily, with other Ducks of their own or other kinds. Most of these were young, no doubt the survivors of broods that had been shot into and broken up earlier in the season. In September one might often find an adult female, and in October, an old drake also, with a flock of young. Hence it is probable that both parents were accustomed — barring accidents — to rejoin their offspring before seeking winter quarters in the South. The date of general departure varied considerably in different years, being governed largely by conditions of

weather, food-supply, etc. As a rule, the local birds began to leave late in September and were mostly gone by the middle of October, although I have known them to remain almost up to the beginning of November.

For upwards of twenty-five years the pursuit of Black Ducks in the Umbagog Region engaged much of my attention, whenever I was there in autumn. It fascinated me because of its manifold difficulties and uncertainties, and whenever crowned by success yielded substantial rewards in the shape of birds which, when roasted over the coals of a camp-fire and served steaming hot on a sheet of birch bark, furnished a feast fit for the Gods. For young Black Ducks reared in Umbagog waters are, without question, exceptionally luscious and well-flavored, although local tradition may err in affirming that when, as not infrequently happened before my day, they were sent to Boston market, they always commanded a higher price there than was given for any coming from elsewhere in New England.

Being averse to the use of decoys, and untrammeled by prejudice against shooting at birds in the water when such chances could be had, I used to hunt Black Ducks as the native gunners did, that is by paddling in a canoe along winding creeks and rivers where birds might be surprised and brought down, as they rose hurriedly on wing; or by stalking them as they were feeding close to shore in coves, ponds, or bog-holes; or by ambushing the flights which came between sunset and dark to Moose Point, or some similarly favored feeding ground. Each of these practices had attractions peculiarly its own, and but slightly, if at all, affected by the success or failure of the primary object. Thus the canoe-trip, easily accomplished, yet extending from sunrise to dark through leagues of beautiful wilderness, was sure to be delightfully entertaining, even if it failed to afford a single successful shot. Nor was the prolonged and stealthy approach through tangled forest or matted marsh-grass to some stretch of water where Ducks were feeding and quacking noisily, ever devoid of pleasurable excitement or unproductive of valuable experience, whether or not the birds were found to be beyond gun-range when the last bit of available cover was reached. Similarly when a calm autumnal evening was spent at Moose Point, the interest of watching the teeming water-fowl and waders as they came into or left the marsh in the gathering twilight, together with the pleasure of contemplating the placid Lake and its encircling, purple-hued mountains, might prove so absorbing and contenting that one inclined to feel rather more glad than sorry if the quiet and serenity of the place remained undisturbed by the discharge of a gun.

Considered from a somewhat more practical and also ethical standpoint, the relative merits of the several methods of hunting Black Ducks above referred to may well be open to difference of opinion. For my own part I have always preferred stalking, whenever possible, (1) because it is an admirable art, difficult to acquire and demanding the exercise of no little hardihood, patience, persistence, and good judgement on the part of him who would practise it with success; (2) because it is conducted without taking unfair advantage of the birds, who may pit their intelligence and watchfulness against the craft of the gunner, on such equal terms that they are quite as likely as not to discover his presence in time to escape unharmed; (3) because it is attended by risks and uncertainties of the most thrilling and tantalizing kind lasting, perhaps, for hours, if the Ducks are uneasy and shifting from place to place, when the gunner must follow them hither and thither with alternating hope and despair. If, at length, a point of vantage is reached whence one may see dimly, through grass or foliage, ten or a dozen of them swimming about within easy range, there are moments of glad and almost overwhelming excitement, when the temptation to rise and fire at once is well-nigh irresistible. Such an impulse must be repressed, however, until getting them well together or in line one may be reasonably sure of killing at least two or three birds by the discharge of the first barrel, counting on only one as likely to fall to the second when the others take wing. On occasions such as these coolness and good judgement are quite as essential as skill in handling the gun, if full and legitimate advantage is to be taken of an opportunity won by infinite pains and not so very often to be had, at least in New England. As for shooting Black Ducks over decoys it is, in my opinion, a not less ignoble than stupid sport, directly comparable, indeed, to lying in wait for deer at salt-licks, and especially objectionable when living, tame birds are employed to lure the wild ones to their doom. Strange to say it is practised in these degenerate days, not only by market-gunners whom one cannot greatly blame for favoring it, but also by intelligent high-minded sportsmen of ample means, who ought to be above such a miserable business, yet apparently are not ashamed of it, and furthermore are given — inconceivable as it may seem — to denouncing stalking as illegitimate and unworthy of all save pothunters, quite ignoring the fact that the latter admirable form of sport was, not so very long ago, endorsed by such eminent British authorities on wild-fowling as Colonel Hawkes and Mr. Colquhoun, as well as by Frank Forester, the very patron saint of all good American sportsmen. Of

course nothing that has just been said is intended to apply to such water-fowl as Canvas-backs, Red-heads, Scaup Ducks, Scoters, etc. As these do not often feed sufficiently near shore to be obtained by stalking, it may be proper enough to entice them within reach of the gun by means of wooden stools, although on the few occasions when I have done this it has seemed doubtful if my time might not have been more worthily employed.

The following account of the habits of the Black Duck is based on personal observation and experience in the Umbagog Region. It consists mainly of extracts from field-notes written there, most of which follow the original manuscript rather closely, although I have not hesitated to condense, elaborate, or rearrange matter which could not otherwise be made serviceable or effective, taking care, however, to preserve its *primal* significance. Many of the dated paragraphs have been transposed to bring together those relating to kindred subjects. In some of them the use of the present tense is retained: —

1884, October 21.— Black Ducks are very abundant about the Lake this autumn, haunting the grassy margins of retired coves and shallow pools among sedgy islands or bare mud-flats. They feed throughout the day, almost as busily at noon as at morning or evening. When a large number are assembled, one of the members of the flock — presumably a wary old drake — is likely to be posted as a sentinel on some outlying tussock or lump of mud, where he sits erect and keenly watchful for the most part, although he may occasionally divert himself by preening his feathers or even so neglect his duty as to indulge in a brief nap — perhaps with one eye open. If the weather be clear and warm, half a dozen or more birds may cluster on some little grassy or earthy mound to dress their plumage and doze in the sun. Every now and then one will scratch its head somewhat awkwardly with the blunt claws on its webbed feet. For two hours to-day I lay concealed *directly* to *windward* and within gunshot of a large flock, yet none of its members seemed to suspect my presence. This experience further confirms my strong belief that Black Ducks, like most if not all other water-fowl, are unable to scent a man, even under the most favorable conditions. Several birds killed of late had their gullets literally stuffed with the bulbous roots of *Sagittaria variabilis*.

1889, September 2–October 30.— Another season noteworthy for the unusual abundance of Black Ducks at Lake Umbagog. They appeared in large flocks early in September and continued very numerous up to about October 7, when their feeding-grounds about the shores of the Lake became submerged and the birds mostly disappeared, apparently quite deserting the region and migrating southward, for there was no marked increase in their numbers when later in the month, the water subsided to its normal level. Towards the end of October I killed some of the large, light-coloured northern ones having the legs coral-red. We saw several small flocks of these descend

from a great height and alight in deep water far out in the Lake, once or twice joining flocks of Scoters there. The local-bred Ducks seldom if ever behave in this way. When the water was rising late in September and early in October, they spent much of their time in the marshes at the mouth of Cambridge River and near the outlet of the Lake, where they could swim freely through beds of rank wild grasses and feast at their ease on the seeds of a particular kind (*Scirpus eriophorum*), of which they are exceedingly fond and with which the stomachs and gullets of all that I shot during this period were filled. The brook-meadows lying near the Androscoggin River above Errol Dam were also much frequented at this time, being similarly flooded. When the water reached its extreme height, it buried all such marshes and meadows completely out of sight, and the Ducks had to seek food and shelter in ponds and lagoons not directly connected with the Lake.

It is interesting to watch a score or more of Black Ducks, led by birds wary through bitter experience with danger, come into a pond or marsh not exceeding seventy-five or one hundred acres in extent. Before alighting they invariably course all over and around it, perhaps as many as half a dozen times, at first high in air, then lower and still lower, scrutinizing every remote nook and corner with keen and anxious eyes. Should nothing suspicious be noticed they finally shoot down on a steep incline and settle, very lightly and gracefully for such heavy fowl, at a safe distance from any cover dense enough to harbor hidden enemies. Just before reaching the water, each bird flaps its wings vigorously a few times to check the impetus of its descent, and then folds them neatly and abruptly. For several minutes after this, all the members of the flock float absolutely motionless with upstretched necks, scanning the neighboring shores so intently and suspiciously that a gunner ambushed there is likely to feel that his chances of escaping detection are somewhat dubious. Nor are such fears without reason, for should he make the least sound or the slightest visible movement, the Ducks are sure to notice it and to rise on wing at once. If nothing of the kind happens to alarm them, their extreme vigilance becomes gradually relaxed and a few birds begin to swim about with lowered heads, sipping the water critically, as if to test its quality. Their example is soon followed by the rest, and presently all head for the nearest grassy shore, strung out in a long line. Upon reaching it they begin to feed, although continuing more than ordinarily watchful and apprehensive for the next ten or fifteen or twenty minutes. The larger flocks are at almost all times safeguarded by one or two birds who apparently take turns in performing this duty. Sitting alert and motionless in open water, Black Ducks float high and seem, as artists picture them, large and stately birds. But when

moving about among lily-pads or pickerel-weed in search of food, they swim so deeply immersed as to expose only the upper part of the body, which shows as a mere narrow, blackish line, at the forward end of which the neck is so closely doubled down that the head is brought very low and the bill only just clear of the water. They are then inconspicuous and also rather odd-looking creatures, easily overlooked or mistaken for something else by inexperienced sportsmen. Even a veteran gunner will occasionally fail to notice them when in plain sight and near at hand, especially if they be among frost-blackened vegetation at the edge of a marsh or surrounded by dark coloured rocks or lumps of exposed mud. In such places attention is often first drawn to them by the glint of sunlight on their wet bills. Presently one may make out as many as ten or a dozen of them, perhaps just emerging from some indentation in the shore. As they cross a wide space of deep, clear water in Indian file and only a few inches apart, swimming very fast, but so smoothly as scarce to ripple the water on either side, yet leaving a boiling wake behind, they suggest a string of miniature deep-laden vessels without masts or rigging — piratical-looking craft, mysteriously propelled. Approaching another shore they pause for a moment to gaze and listen intently with raised heads, clustering together as the leaders are overtaken by the rest, when the line lengthens out again and moves forward, or the birds scatter about to feed. Alternately halting and advancing, keeping for the most part near shore and often within a yard of it, they sometimes swim a mile or more without once turning back; but in shallow, windless coves and ponds where food is plentiful, they are not given to roaming thus widely, and may spend hours — or a whole day, for that matter — cruising to and fro in some sunny nook, only a few acres in extent. On rejoining one another after brief intervals of separation, they nod their heads abruptly and emphatically as if in mute salutation, a gesture occasionally repeated many times in succession by all the members of a large flock. They subsist on animal as well as vegetable matter of various kinds, much of which is gleaned among marsh-grass or from the leaves of floating plants, but the larger part obtained — at least in autumn — by grubbing in muddy or sandy shallows where, in order to reach the bottom, they must immerse their heads and necks, with more or less of the body, also, if the water exceeds a foot in depth. Sometimes little more than the tail is shown — and this twitching violently as its owner struggles to dislodge the succulent root of some aquatic plant, at the same time kicking vigorously upward with his feet in order to keep from rising

to the surface. When, tired by such strenuous exertions or gorged with food, they bury their heads in their scapular feathers and close their eyes as if in sleep, after landing on some rocky or muddy point, it seems an easy matter to steal within gunshot of them; but if they really slumber at such times, it is but lightly, for they are then commonly more difficult to approach than when engaged in feeding.

I once found a solitary bird taking its siesta on the leaning trunk of a tree at least eight feet above the surface of a woodland pool. Lying prone, with the head completely hidden in the ruffled plumage of the back, it seemed to be fast asleep. There were some Wood Ducks near it which I stalked and finally shot at. As I was approaching them the Black Duck awoke and *without opening its wings* or even rising on its legs, slid off the trunk and dropped plump into the water like a big turtle, making as much noise as if a large stone had been thrown in. It then swam away quietly, with lowered head. I doubt if it so much as suspected my presence until the gun was discharged at the Wood Ducks.

Possessing hearing not less discriminating than acute, Black Ducks distinguish with admirable sagacity between sounds of different origin, taking slight if any apparent heed of those produced by squirrels and mice rustling in beds of dry leaves, or by deer treading among brittle twigs, although similar noises made by a man, advancing cautiously and unseen, rarely escape attention or fail to be correctly interpreted, at least in calm weather. The birds' ears are of comparatively little service, however, when an autumnal gale is blowing and drowning all lesser sounds, for then the sportsman may tramp noisily among dense brushwood within a few rods of the wariest Ducks without attracting their notice, provided he does not show himself. But should one of them catch a glimpse of him before he gets within range, his chances of obtaining a shot on that occasion are at an end. For Black Ducks have not only sharp and restless eyes, but also quick intelligence, and within a few seconds after first noticing a man, they invariably make out what he is, even though he be quite motionless and screened by grass or foliage. If he is at a distance they may watch him before taking wing, but should he be near at hand the bird who sights him first is sure to rise almost immediately and to be followed quickly by all the rest. If, on the other hand, they suspect the presence of hidden danger, but cannot satisfy themselves that it certainly exists, they may merely swim far out from shore, perhaps returning later after becoming reassured. When a gun is fired at close range into a flock of wholly unsuspecting birds, it sometimes so bewilders and

confuses them that many which have received no injury float motionless for a second or two with upstretched necks before rising, after fluttering away from the path torn up by the shot, much as domestic Ducks will scatter when a stone is thrown among them.

Black Ducks floating in open water, at safe distances from land, often "bunch" together closely, but when feeding near shore they are commonly so scattered that even when as many as forty or fifty are within fair range, it is difficult to get more than two or three with the first barrel, while only one is likely to be secured by the second, for as they rise hurriedly on wing they always separate widely. The greatest number that has ever fallen to the double discharge of my gun was five and only twice or thrice have I killed as many as four. I have had a few opportunities, however, which might have yielded larger results. One that I shall always remember with especial chagrin happened in Bottle Brook Pond when upwards of twenty-five Black Ducks which I had been watching for an hour or more finally swam into a little nook within thirty yards of me, literally crowding it. Here, thought I, is the chance of a lifetime, as I aimed deliberately at the very centre of the dusky mass and pulled the trigger with full expectation of bagging ten or a dozen birds; but when the flock rose at the report they left behind only a few stray feathers. A single Duck that dropped dead to my remaining barrel afforded but poor solace for the astounding failure of the first discharge. The only way I can explain it is by assuming that the birds must have immersed their heads and necks just as I fired. If this really happened it is not strange that I missed them all, for water-fowl of almost every kind run little risk of serious injury when, with only their backs exposed, they are shot at from an elevation but slightly above their own. Under such conditions the leaden pellets either fail altogether to hit the bird or rake across the bony structure of its back, inflicting no more than superficial and trifling wounds.

A Black Duck so wounded as to be incapable of flight, but not of swimming, always goes ashore as soon as possible, first crossing the pond if it be small, or skirting its edge for twenty rods or more if it is of considerable extent. If shot at again or followed by a dog, the bird will dive persistently and shrewdly, keeping under water for forty or fifty yards at a stretch and exposing only the head on returning to the surface for air. When not thus harried it swims fast and steadily, with body sunk almost out of sight and neck flattened on the surface, resembling a piece of blackened drift-wood. Coming, at length, to shore it enters a bed of rank grass, if this be available, scuttling into

it very quickly and crouching under a tussock after going back a few yards from the edge of the water. Should the shore be bold and barren of vegetation, the bird may have to ascend a steep, rocky slope for fifteen or twenty rods before gaining sanctuary beneath some shelving ledge or prostrate log. Thus ensconced it looks exactly like a tame bird sitting quietly on her nest, and with similar immobility will allow a man to step over it or a dog to point it. But should the man stoop to touch it or the dog spring to catch it, it will make off at once towards the nearest water, running with surprising speed through grass and bushes, or over rough, rocky ground. I am inclined to believe that crippled Black Ducks overlooked in such hiding places remain in or near them until they either recover or perish from their wounds, for I have never known them to return to pond or lake while still unable to fly. Moreover my keen-nosed pointer "Don" has often found them on wooded ridges a day or two after they were known to have been shot down.

Although strong and swift of wing, the Black Duck does not habitually fly so fast as do many other water-fowl, but not one among them all can equal it in respect to the quickness and ease with which it leaves the water, when startled. Then it will mount almost straight upward like a towering rocket to a height of twenty or more feet before settling on a level course. I have seen it do this in flooded timber where, in order to clear the tops of the trees, it had to ascend nearly vertically to an elevation above the water of fully sixty feet. In such places it did not always take similar trouble, however, for, when so minded, it can fly at full speed through dense forest, threading its way among crowded boles and interlacing branches with as much apparent ease and certainty as a Ruffed Grouse. Sometimes when rising unalarmed in the open, it omits the customary upward spring, and after getting only just clear of the water, flies off low over it, inclining only slightly upward. During straight, level flight, its wings move ceaselessly in long, untiring sweeps slow enough to be followed by the eye and producing a tremulous, silvery whistle too faint to be audible at distances much exceeding one hundred yards, but very pleasing to the ear, especially if coming from unseen birds passing low overhead of a calm autumn night. When mated birds are flying together in early spring, the female usually leads the way and is closely followed by the drake. It is easy to distinguish the sexes at that season, even at considerable distances, by their different sizes, the male being the larger. Ducks engaged in reconnoitring a pond or meadow frequently set their wings and soar in circles. They hold the wings similarly rigid when

descending abruptly on steep inclines just before alighting. Sometimes a score or two of incoming migrants will shoot down almost vertically from an elevation of a thousand feet or more, with a sound like that of a strong wind blowing through pines, swaying slightly from side to side as they pitch earthwards with almost inconceivable velocity — an impressive sight, not often witnessed, however, save by early-rising sportsmen, for the birds usually arrive and settle before sunrise.

When fearful of danger — especially in unaccustomed places — Black Ducks are not less silent and sedate than watchful, but haunts regularly frequented by them and not often visited by man, are the scenes of many a boisterous and noisy frolic in which a dozen or more birds may engage at once; chasing one another about over the water; thrashing it with their wings; occasionally dipping under it for an instant; every now and then raising their voices in prolonged and clamorous outcry. Ordinarily their dives are short and infrequent, but this rule is not without exceptions. One autumn (on September 22), upwards of forty birds which I was watching through my field-glass at a distance of about one hundred and fifty yards began diving so persistently and vigorously that they reminded me not a little of Scoters. First beating the water with their wings, one after another, in quick succession, would cleave its surface almost as deftly as Mergansers, reappearing several rods away. At times all but a very few were under at once. Presently they surprised me still more by *diving from on wing*. Rising singly, or six or eight together, against a strong wind, and then flying heavily for a few yards, only a foot or two above the pond, with the tips of their wings depressed, they would plunge headlong into the water, and after a brief period of total submergence, mount into the air to plunge again. All this took place in open water five or six feet deep and out of gunshot from the shore, in a small, forest-encircled pond. Quite evidently the birds were disporting themselves, not feeding. Their behaviour was unlike anything I had hitherto witnessed, and probably very unusual, for local hunters of large experience to whom I have described it assure me that nothing of the kind has ever come under their observation.

Along the coast of Massachusetts expert gunners often approach Black Ducks closely in low-sided boats draped with marsh-grass and propelled by sculling. I have never known this plan to succeed at Lake Umbagog. Whenever I tried it there the keen-eyed birds always recognized my boat for precisely what it was, within a few seconds after

fixing their attention on it, however carefully it might be screened with grass or foliage. Such, at least, was invariably the case when it was moving towards them in open view. On a few occasions when it lay motionless, and partly hidden by reeds or bushes, an unsuspecting bird flying that way did fail to notice it in time — and forfeited its life in consequence.

Some female Black Ducks quack exactly like tame Mallards, others in deeper, hoarser tones. Ordinarily the familiar calls are given disconnectedly, perhaps at rather wide intervals, but every now and then an excited, garrulous bird will pour them out rapidly, in oft-repeated volleys, making the pond or marsh resound with her clamor. All that the drake appears to be able to produce is a halting series of feeble, cracked, asthmatic notes of which he is perhaps suitably ashamed, since he makes comparatively little use of them. When many birds of both sexes are together after dark, they not infrequently keep up an almost incessant chorus of rolling croaks, very frog-like in quality. Oftenest at night, but sometimes in the daytime, one may also hear subdued champing, smacking, and sucking noises, which the Ducks make with their bills as they dabble in mud, or in water-soaked vegetation.

Since time immemorial it has been the custom of practically all the Black Ducks found in the Umbagog Region in autumn to fly every evening from the various coves, ponds, brook-meadows, and river-reaches, where they spend the day, to Moose Point, which seems to attract them particularly at night. Arriving between sunset and dark, in flocks of varying sizes, and also singly or in pairs, they come from every direction, but chiefly from the west and north. The tenacity with which they cling to this habit is remarkable, in view of the fact that they are constantly shot at from the Point — and have been for unnumbered years. Despite such persecution they return night after night, whenever the Moose Point marsh is not too dry or too deeply submerged to afford them food and shelter. Even when it fails to do so they often fly over and around it at the accustomed hour, before going elsewhere. Why it should attract them so strongly is somewhat mysterious, for the marsh does not seem to differ essentially from others bordering on the Lake. They visit it most numerously and regularly when the water is just high enough to enable them to swim about freely under the cover of the grass. Then they will settle all over it and show singular indifference to sights and sounds, which at other times and places are seldom thus ignored. The gunners lie in wait for them among the earthy mounds heaped up by

ice along the shores of the Point, and also well out in the marsh itself when this can be entered by a boat. Most of the incoming birds fly over and around the marsh at least three or four times before alighting, at first coursing back and forth at a height above gun-range, now showing in strong relief as they cut across a patch of rosy western sky, next lost to view against obscuring clouds or black mountain masses. Descending lower at every wheel they make the final circuit only fifteen or twenty feet above the marsh. Although of obvious service elsewhere, this habit of aerial reconnoitring has led many a Duck into deadly peril at Moose Point, a fact perfectly well known to some of the older and wiser birds, who, if they circle at all, do so only over the central portions of the marsh, prudently avoiding its confines where the gunners are commonly concealed.

As long as daylight lasts, the Ducks at Moose Point are likely to maintain much of their customary vigilance, but in the deepening twilight they often pass on wing within a few yards of canoes floating in open water, or of men standing erect in the middle of the marsh. After it is enshrouded in darkness, one may either walk or paddle across it without disturbing many of them. So utterly heedless do they now become of loud and startling sounds, that I have struck the gunwale of my canoe sharply with a paddle, or even discharged both barrels of my gun, just after ten or a dozen birds had alighted not thirty yards away, yet without flushing one of them, while less than a minute later I might hear them croaking and splashing as they fed among the flooded grass, seemingly unconscious of my presence. Such behaviour is difficult to explain. For although the shades of night may obscure the vision of the Black Duck, they cannot possibly dull his sense of hearing. Perhaps he relies on the darkness for concealment — just as he will occasionally hide by day in grass or bushes, like a Snipe or a Bittern, until almost trodden on. If this be so, he acts not altogether unwisely, for night shooting is at best an uncertain sport, seldom very richly rewarded save by pleasurable excitement.

When Moose Point is too dry in autumn to attract the Ducks, they sometimes fly at evening to the more extensive and lower lying marshes at the outlet, to which the following passages from the journal relate:—

1894, SEPTEMBER 12.— Soon after sunset scattered Black Ducks began to appear, cutting across the sky and shooting down on set wings to the flooded marsh where they splashed in the water and quacked lustily. Thirty or forty came in during the next half hour, but not one gave me a shot, although the light, silvery whistling of their wings, as they passed behind or high above my

place of concealment in a bed of rank grass, kept me constantly crouching low and craning my neck in different directions. The squealing cries of Wood Ducks were almost incessant, but I did not happen to see any of these birds, although the marsh was evidently alive with them. It was getting almost too dark to shoot, when against the sky towards the northwest I noticed a long, dusky line advancing. This proved to be a large flock of Black Ducks. Their approach was truly imposing, for there were more than fifty of them and they came on all abreast — the stately birds! — in an evenly-spaced column, extending at right angles to their line of flight and fully one hundred yards in length. As if at a given signal, every wing ceased its rapid pulsations when, on reaching the marsh, they swooped down on a steep incline, with a sound like that of wind in pines. A thrilling moment followed for I had by chance chosen the very spot where they wished to alight, and as the centre of their column charged straight at me and its ends lapped half around me on either side, I seemed to be in the vortex of a whirlpool of tumultuous, hurtling wings, and could not help imagining for an instant that the birds were making a combined onslaught on me with intent to bear me off. Nevertheless, I managed to control my nerves sufficiently to rise quickly out of the grass and bring down a Duck stone dead with each barrel of the 20 gauge gun. The shots not only threw the big flock into helpless confusion, but also raised all the other birds, so that for the next minute or two the air was filled with streams of Ducks flying in every direction. It was too dark for them to notice me, although I was now standing erect in a pool of water, and many came within range, giving me chances to bag three or four more, but I contented myself with one additional bird which fell in the grass beyond the other two, and with them was soon afterward found and retrieved. Thus ended one of the most exciting experiences that I have ever had in a fresh-water marsh.

1897, September 11.— At evening Will Sargent rowed me across the Lake to the outlet marsh. After looking about a bit, trying to find a place where Ducks had been feeding, we finally pushed the boat into a bed of half-submerged grass, lighted our pipes and waited for the birds to put in an appearance. It was not long before Black Ducks began to arrive and alight in the flooded marsh. Most of them came singly, but one flock containing a dozen or more settled some distance off. None approached us closely at first, but we could see or hear them in every direction. At times the whole marsh rang with the loud quacking of the females, and every now and then the wheezy, asthmatic voice of a drake was heard. Nevertheless there were not very many in all — possibly no more than twenty-five or thirty. The single ones called loudest and oftenest, but in no instance, so far as I could make out, did any join Ducks that answered them, each bird seeming content to remain in the feeding-ground that it had chosen, and to be merely gossiping in Duck language with friends in other parts of the marsh. Such behaviour is generally characteristic of the Black Ducks of the Umbagog Region. Nor will they often either alight with or swim towards, tame Ducks used there as decoys.

Just as we were about to start for camp, night having set in, Will whispered

that some Ducks were coming up behind us. Turning slowly and looking back, I saw them about seventy yards away, in a broad belt of subdued light cast on wind-ruffled water by a full moon, perhaps an hour high in the eastern sky. It was a singularly memorable and striking picture — that of the dozen or more silent, long-necked birds filing stealthily, like so many dusky shadows, across the shimmering, silvery pathway, to be instantly lost to sight as they entered the dense obscurity beyond. We followed them quietly, but failed to get them again under the searchlight of the moon, and it was not long ere they discovered us and rose unseen with a startling roar of wings. I sent a charge of shot after them, firing at random and without avail. The report of the gun seemed to pass unnoticed by the other Ducks, for when we left the marsh, only a few minutes later, they were quacking and splashing as noisily as ever, in various parts of it.

A dozen or more Black Ducks, which I was watching in C Pond on September 25, 1887, rose in great confusion and evident alarm, when a Bald Eagle sailed out over the cove where they were feeding. As they flew off an old male Wood Duck, who seemed equally perturbed, followed them. On no other occasion have I ever known water-fowl of any kind show the least fear of a Bald Eagle in the Umbagog Region. It used to be a common experience to find scores of them swimming about or basking in the sun, in Leonard's Pond within ten or twelve rods of a stub on which an Eagle sat in plain view. Nor did they seem either to notice the big bird or to be noticed by him, when he chanced to fly low over them on his way to another perch. It is possible, however, that a hungry Eagle occasionally catches and kills a Duck. One was actually seen eating a Black Duck, by a guide whose word is not to be doubted, but when I questioned him closely he admitted that as the bird showed no white on head or tail it might have been a Golden Eagle, nor did he know how it had come by the Duck, which it might have picked up wounded or dead.

I have occasionally killed Black Ducks at Lake Umbagog, which were conspicuously mottled with white, and others which were exceptionally, and perhaps even absurdly, tame and confiding. It is probable that most, if not all, of these birds had once been domesticated. Such, at least, was the opinion of a gunner whom I met at the Lake in the autumn of 1888 and who was then accustomed to shoot over live decoys at Sumner, Maine. He said that he frequently lost stool birds which flew off with the wild ones; that he bred them three quarters Black Duck and one quarter tame Mallards; that many of them closely resembled the former species, while some were more or less marked with white.

All the nests of the Black Duck that I have personally seen in the

Umbagog Region were built on small wooded islands in the Lake. The first was found on May 25, 1880, near the centre of an island some three acres in extent, elevated perhaps twenty feet above the level of the Lake and heavily timbered with spruces. Beneath these yew formed a stiff undergrowth. As I was picking my way slowly through it a Black Duck flushed about twenty yards in advance and flew off silently among the crowded stems of the trees. Going to the spot whence she had risen, I came upon an old white pine stump about two feet high, in the deeply-hollowed top of which she had cunningly hidden her nest. It was composed wholly of down, plucked from her breast, in which were embedded seven eggs. Although fully exposed to view when looked at from above they were completely encircled by a raised fringe of the beautiful dark-coloured down. They proved when blown, to be quite fresh. Their shells were rather thin, their yolks deep salmon-red in colour.

In the spring of 1897 Mr. Watrous and I found three nests, of which the journal gives the following account:—

1897, May 21.— At the eastern end of the narrow channel that leads into the Sweat Cove from where our house-boat is now anchored, lies a small, wooded island on which a Black Duck must be nesting. We saw her fly from it this afternoon to be joined, presently, by a drake, no doubt her mate; the two birds fed together almost within gunshot of the boat for half an hour, at the end of which the Duck flew back to the island. We shall look it over tomorrow.

May 22.— Early this morning the two Black Ducks were again observed swimming together near the shores of the little island. Four of us rowed over to it just after breakfast, and ransacked almost every nook and corner of it without finding anything save a last year's nest of a Water Thrush. We were returning to the boat, and within a few rods of it, when I noticed a bed of yew that we had all passed by soon after landing because it seemed too isolated and scanty to be worth investigating. Turning aside to examine it I was about to enter it when a slight movement of one of the branches caught my eye. The next instant a long, dark neck was thrust up, not twelve feet from where I stood. Half a second later a Black Duck sprang directly from her nest and with quacking outcry and prodigious fluttering of wings rose among the trees and went off over the Lake. Without shifting my position, I could now see through the thin canopy of yew foliage that overspread them her full clutch of thirteen eggs. As we afterwards ascertained, she had been sitting on them about two weeks. Although wholly uncovered by her down there was no lack of this under and around them. Intermingled with dry leaves it formed a warm and substantial nest sunk to the rim in dry, fine soil at the foot of a big hemlock, and measuring eleven inches across the top by three and a half inches in depth. The tree stands on the crest of a knoll at the eastern end of the island, and about thirty feet from the water in three directions. The island is not more than two

acres in extent, and is everywhere densely wooded, chiefly with spruces, balsams, and hemlocks. This nest is the only one near which I have ever seen a drake after his mate had fairly begun to incubate her eggs.

MAY 25.— Most of to-day was devoted to watching the Black Ducks and their nest. After photographing it in the early morning I left my camera, partially covered by the trunk of a birch and further masked by young spruces, within fifteen feet of it, and returned to the house-boat. At frequent intervals through the forenoon, we saw both Ducks flying together over and around the island. They must have seen the camera, or at least suspected its presence, for neither bird would alight as long as it was there, although soon after it was removed, (at one o'clock), the female went back to her eggs. As a natural result of the repeated visits we made to the nest to-day, she became shyer and shyer, often leaving it when we were landing twenty yards away and out of her sight. She flew directly from it as a rule, but once ran a few yards before taking wing. Invariably she rose straight up through the trees to a height of thirty or forty feet, avoiding the branches as easily as any Grouse might have done, and quacking loudly. Her eggs were always left uncovered. On returning to them, she commonly first alighted in the water near the island, and a few minutes later, flew thence straight for the nest, entering the woods at full speed only two or three yards above the ground.

Watrous took me this afternoon to a Black Duck's nest containing ten eggs incubated about two weeks, which he found yesterday. It was in the Sweat Cove at the northern extremity of a small island densely wooded with spruces, balsams, sapling white pines, and canoe birches, beneath which is an almost impenetrable undergrowth of young spruces. The nest was about ten yards from the water in three directions, near the middle of a thicket of spruces from three to five feet in height and so crowded together, over as well as around the nest, that I doubt if any large bird, even a Ruffed Grouse, could possibly have risen up through them on wing. The Duck did not attempt it either yesterday or today, but instead ran all the way to the Lake shore. On the first occasion Watrous nearly trod on her before she left the nest; on the second she started from it when I was about eight feet away and scuttled off through the thicket at a speed truly surprising in a web-footed bird, and indeed almost as fast as a man can run on open ground. On reaching the water, she flew out perhaps twenty yards from shore and alighting, swam still further off swaying her head and neck forward and back like a Mud-hen as she rose and fell with the waves. Her nest measured twelve inches one way and thirteen another, across the top, and was three and one half inches in depth. It was a rather thin mat of pine needles and birch leaves mixed with down, lining a deep, symmetrical, perfectly circular hollow, evidently made by the bird, and having a raised rim formed wholly of earth which she had scooped or thrown out with bill or feet.

Another nest containing ten eggs was shown me to-day by Watrous. It was at the southeast end of a rather large, wooded island (Bear Island), near the Narrows, on a level spot about twenty yards back from the shore in three directions, and elevated four or five feet above high-water mark. The ground

about it was smooth, dry, and thickly covered with dead leaves; perfectly free from undergrowth, weeds, grass, or other low cover; partly shaded by large trees, chiefly yellow birches, (as yet leafless), with a few scattered spruces and balsams. The nest was placed near the foot of a balsam sapling (four inches through at the base), and was composed mostly of dry leaves mixed with down, the rim being raised and prominent as in the other nests. Across the top it measured ten by eleven inches. Its greatest depth was three and one half inches. So wholly unconcealed was it that the light buffy eggs, contrasting sharply with the wood-browns of the general surface about them, could be seen easily from a distance of fifteen yards or more in any direction. A Crow looking down from above must have been dull-sighted indeed had he failed to notice them. They were not covered in the least with down. All had been incubated about seven days. When Watrous found the nest this forenoon, and again when we visited it together in the afternoon, the Duck flushed at a distance of about fifteen yards, going straight up through the trees. On both occasions the approach was made by land from the other end of the Island. As the nest was in plain view from the Lake, Watrous afterwards tried to see the bird on it by rowing quietly past the spot in his boat, but she rose before he got within thirty yards of her.

In respect to size, material, and general character of construction, all three of these nests were much alike, and the uniform distance at which they were placed from the water *in three directions* is rather remarkable; but one was in an open and very exposed situation; another rather well concealed by yews; the third so perfectly hidden beneath densely matted young spruces that without first removing several of these, or bending them forcibly to either side, it would have been impossible for man or predacious bird to get so much as a glimpse at the eggs, either from above or from a distance exceeding four feet away in any direction. I am now inclined to believe that practically all the Black Ducks breeding about the Lake nest on islands, and that these are preferred to the mainland, because they seldom harbor Foxes in summer.

It should be understood that what has thus far been said about the Black Ducks of the Umbagog Region relates almost wholly to a period which terminated upwards of fifteen years ago. Since then the birds have almost, if not quite, ceased to breed about the Lake, or even to be seen there often in summer, having been banished chiefly, no doubt, by the noisy motor-boats which now constantly disturb practically every part of it during the warmer months. When I last visited it in June, 1909, I failed to meet with a single Black Duck anywhere, but was told of broods of young that had been seen by guides or fishermen in secluded ponds or remote river-reaches. As for autumnal condi-

tions, it is said that the birds continue to reappear in considerable numbers in September and October at Moose Point and in the marshes about the outlet, but concerning this I cannot testify from personal observation.

Mareca penelope (Linné).

EUROPEAN WIGEON.

Of casual occurrence in autumn — only one heard.

On October 12, 1890, I visited Errol Hill Pond in company with James C. Melvin of Boston. Two Whistlers, diving for food at the western end, were all the water-fowl we could see on first reaching it. My companion stalked them successfully and shot one. Startled by the report of his gun, a brownish-coloured Duck rose from beneath some bushes that overhung the water directly in front of me and only a few yards away. It got out of range before I noticed it, and alighted near the entrance of the Pond. When I had reached there it had disappeared. Shortly after this it reappeared in the water not far from Mr. Melvin and was again started by him. With the evident intention of leaving the Pond altogether, it circled once or twice to get well above the tops of the trees, and then came directly over me, high in air, flying at great speed. A second or two later it fell dead, almost at my feet, pierced in a vital part by a single pellet of no. 4 shot from the 20 gauge gun, pointed, at the instant of discharge, not less than fifteen feet in advance of the distant and rapidly-moving bird. Thus by a narrow chance was secured the only European Wigeon that I have ever consciously seen living, or am likely ever to kill. The full measure of my good fortune was not, however, realized at the time, for as the Wigeon was a young male, essentially in the plumage of the female, and differing in no obvious respect from similarly immature males of the American Wigeon, I referred it unhesitatingly to that species, and might have even neglected to skin it had it been much disfigured by the shot. When the specimen reached Cambridge and was rather carefully compared with a series of Baldpates of corresponding age and sex in my collection, it seemed to resemble several of them more closely in general colouring than it did any of the known examples of the European Wigeon which I then possessed. Hence it was confidently labeled *Mareca americana*. This identification remained unquestioned by anyone until very recently, when Mr. Outram Bangs and Dr. J. C. Phillips made and announced the important discovery that the axillary feathers of fully-grown American Wigeons of both sexes and all

ages are always chiefly and usually wholly white, whereas those of the Old World species are invariably so conspicuously and extensively marked with ashy that they have a generally greyish appearance. After having tested this alleged character by examining a large number of Wigeons of both species in the U. S. National Museum and elsewhere I am inclined to put strong faith in it. If it be really infallible there can be no question that the Wigeon killed in Errol Hill Pond on October 12, 1890, is a typical example of *Mareca penelope* for its axillars are more profusely marked with ashy than are those of any undoubted specimen of the European species which I remember to have seen.

Mareca americana (Gmelin).

BALDPATE. AMERICAN WIGEON.

Transient visitor in autumn; of unusual, if not merely casual occurrence.

Early in October, 1888, Luman Sargent and I met with Baldpates repeatedly at Lake Umbagog, chiefly in the marshes, at or near the outlet — flooded that season — where the first birds, six in number, were found on the 2d of the month, among thinly-growing, half-submerged grass. At a distance they looked so grey that I thought they might be Pintails. As we neared them they ceased feeding and drew together with upstretched necks as if about to fly. But although we had to approach them in full view in an unscreened boat, Luman brought me finally within forty yards of the flock, when I shot down three of its members. One of these, being wing-broken only, swam away from the grass into perfectly open water, where we pursued it, occasionally flapping its sound wing and once uttering a hoarse, croaking *quoc — quoc — quoc*, very like that of a Goosander, but making no attempt to elude us by diving. Another bird, obviously uninjured, remained for a time by the side of one that appeared to have been only slightly wounded, and then flew with it well out into the Lake, where both alighted. As we were approaching them again, the unhurt bird left the other several times, always returning to it presently, however, and, on alighting near it, calling *aough* or *ough*, as if to warn it of the impending danger, and with such success that it arose and went off southward with its devoted companion long before we got within gunshot.

Luman and I were at Moose Point on the evening of the following day, (October 3), when two Baldpates came over the marsh, flying and looking very like Wood Ducks. After circling once or twice, they

alighted not far from us in open water surrounded by dense grass, through which we pushed the boat, flushing the birds within twenty yards, when I killed one and missed the other. They rose precisely like Black Ducks, mounting almost straight upwards to a height of fifteen or more feet, with swift and sudden rush, before beginning level flight.

On the morning of the 9th, we came upon five Baldpates feeding in a flock of Black Ducks, very near where the River leaves the Lake. The Black Ducks rose wild, and four of the Baldpates went off with them, but the fifth, an adult male, lingered behind the rest, and I killed him just as he took wing. His reluctance to fly was explained by the presence of a gaping but superficial wound in his breast, apparently inflicted by a rifle ball not long before. Later in the day and within two or three hundred yards of the same place, we saw six Baldpates alight on the edge of a grassy shore, where two Scaup Ducks joined them presently, but left them when they swam into the grass, as we approached in an unscreened boat which they must have seen. When we were perhaps forty yards distant, they bunched together so closely that by firing into them as they sat on the water I stopped four with my first barrel, bringing down another with the second as the two survivors rose. Two or three that were merely incapacitated from flight by their wounds did not try to escape by diving or even by hiding, when pursued, although one went ashore and remained there in plain sight, at the water's edge, until picked up. No other waterfowl with which I am familiar ever show such an utter lack of resourcefulness, when thus only partially disabled. On this, as on the previous occasions, I noticed that the Baldpates rose from the water like Black Ducks, but when fairly under way flew more nearly like Wood Ducks — that is with comparatively slow and easy wing-beats. In the air they strongly resembled females of the latter species in general shape and colouring, but showed more and clearer white in the wings and on the under parts, and paler, redder-looking breasts.

During a snowfall that came on the following day, (October 10), Luman and I found four Baldpates in the lagoon in Sweat's Meadow, close to the Androscoggin River, but several miles below the outlet. As they were in company with about fifty Black Ducks, and at some distance from any cover, it was impossible to get near them. They went off with the Black Ducks when the latter saw us and left the pond.

Since the year referred to, I have noted the Baldpate at the Lake on one occasion only, viz. September 21, 1897. This experience is briefly described in my journal as follows: —

As we were paddling up the lagoon in Curtis Meadow (not far from Sweat's Meadow, but on the opposite side of the Androscoggin) and nearing its head, where the brook comes in, we saw a Golden Eagle first poise and then swoop straight down just behind a wooded point. At the same instant we heard a Duck quack hoarsely. Immediately afterwards Black Ducks and Wood Ducks began to stream out over the tree-tops from a pool beyond the point. Following them closely came a flock of eight or ten birds which I felt "nearly sure" were Baldpates. As they passed us within long gun-range, I fired at one which first lagged behind the rest, and then pitched headlong into dense woods on a neighboring hillside, where it probably fell quite dead, but could not be found, although we searched for it upwards of an hour.

The records just given being all that my notes and recollection supply, it follows that as far as my personal knowledge and experience go to show, the Baldpate has appeared in the Umbagog Region during only two autumns within the past forty or more years, but that during one of these it occurred rather commonly. The journal entry admits some slight uncertainty as to the correctness of the identification of the birds seen in September, 1897. Although continuing to believe that they were Wigeons of some kind, I am by no means equally certain that among them, as well as among those that escaped me in 1888, there may not have been one or more representatives of the European species, the females and young of which cannot possibly be distinguished, when living and at a distance, from those of the American Wigeon or Baldpate. Even by taking such birds in hand and directly comparing them, no ornithologist, at least in America, was able to separate the two species with any confidence, before it was ascertained, only two or three years ago, that Baldpates of whatever age or sex have the concealed axillary feathers pure white, and nearly, if not quite, immaculate, whereas the European Wigeon has them more or less decidedly greyish. As this character was wholly unknown to me in 1888, I may have even misidentified some of the nine supposed Baldpates killed that year, for three of them, being females or young males in no obvious respect peculiar, and too badly shot to make good specimens, were not preserved. The remaining six are in my collection; on reëxamining them I find that all are perfectly typical examples of *Mareca americana*.

Nettion carolinense (Gmelin).

GREEN-WINGED TEAL.

Uncommon transient visitor in autumn.
September 4 (1897)–October 12 (1885).

My definite records of the occurrence of the Green-winged Teal in the Umbagog Region are not too numerous to be given in full, essentially as they were entered in the journal. They are as follows:—

1885, OCTOBER 12.— A young male Green-winged Teal, shot to-day in the Cambridge River marshes not far from the Lake House, was feeding along the muddy shore of a shallow pond. Tamer than most of its kind it permitted me to approach within fair gun-range in an undisguised boat.

1888, SEPTEMBER 15.— On this date William E. Skillings of Bethel killed a Green-winged Teal somewhere near the Outlet of the Lake. He kept its wings which I have examined. They look like those of a young bird.

SEPTEMBER 29.— Luman Sargent and I lingered late in Sweat Meadow this evening — after spending the day there. Twilight was fading into night when four Black Ducks, accompanied by a Green-winged Teal, alighted in the lagoon beyond some bushes. To these we paddled silently in our boat, without being discovered, but when I showed my face above them, it was seen at once by the Black Ducks and they rose out of range. The Teal had joined six Wood Ducks which we succeeded in approaching closely, across open water, under cover of fog-wreaths drifting low over its surface. I was especially anxious to secure the Teal, but in the dim light it could not be distinguished from the Wood Ducks. It happened, however, to be among the birds that were slain by the double discharge of my gun, and proved to be a young male.

OCTOBER 3.— Just before sunset this evening I saw two Teal flying, in company with four Black Ducks, over the marsh at Moose Point, in which all six birds finally alighted together. There can be no question I think that the Teal was a Green-wing.

OCTOBER 4.— Late this afternoon I flushed a Green-winged Teal from a pool among the grass on Moose Point. It rose at least eighty yards in advance of me, mounting straight upward like a Black Duck to a height of about twenty feet, and then flying off very swiftly.

OCTOBER 6.— Entering Leonard's Pond this forenoon in a boat draped with grass, my guide and I came upon a Green-winged Teal sitting on a snag near shore, preening its feathers. We paddled within thirty yards of it across open water before it showed any signs of noticing us. On shooting it I found that it was a young male.

OCTOBER 10.— I got another young Green-wing in Leonard's Pond to-day, approaching it by land, through dense woods, and watching it for a considerable length of time before shooting it. When first seen it was with four Wood

Ducks. Leaving them presently, it ranged far and wide about the Pond; now pausing to feed awhile in grassy shallows close to shore, much after the manner of a Black Duck; next hurrying straight on as fast as it could swim; then paddling aimlessly to and fro, over broad reaches of deep, clear water; at length going to sleep with its head tucked under its wing. Occasionally it indulged in prolonged and querulous outcries, uttering many times in quick succession, in a cracked, strident voice, a nasal *hac*, not unlike the feeble call of a drake Black Duck, but also suggesting the rasping *scaipe* of Wilson's Snipe. Altogether it seemed a pathetically forlorn and lonely little waif whose life I would fain have spared at the last had not its skin been coveted for my collection.

1889, October 1.— One shot (just where and by whom the journal entry fails to state).

1897, September 4.— A son of Dr. J. T. G. Nichols (of Cambridge, Massachusetts) killed a Green-winged Teal on this exceptionally early date, flushing it from the grassy bank of the Androscoggin River near the entrance to Leonard's Pond. Two days afterwards I was shown its wings — worn and faded at the tips and apparently those of an adult female.

1898, September 15.— A Teal flying in company with four Black Ducks came over Moose Point while I was there this evening. Although seen at too great a distance to be positively identified, I have no doubt that it was a Green-wing. This species frequently consorts with Black Ducks, whereas I have never known the Blue-winged Teal to do so.

In addition to the instances of occurrence just given, others have been reported to me which I did not note, either because the identification of the birds failed to be wholly satisfactory, or because the precise dates when they had been killed or seen could not be ascertained. Taking this additional and more or less dubious evidence somewhat into account, it seems safe to conclude that Green-winged Teal must have visited Lake Umbagog rather regularly, if only very sparingly, during the period above referred to. Nor is it unlikely that they do so still, for elsewhere in New England they are met with no less often now than they were forty or fifty years ago.

Querquedula discors (Linné).

Blue-winged Teal.

Transient visitor in early autumn; formerly abundant; now seldom seen. September 1 (1887)–25 (1895).

At Lake Umbagog — as elsewhere in New England — the autumnal flight of Blue-winged Teal was looked for no less confidently than

eagerly by the gunners of thirty or forty years ago. For the birds always appeared more or less numerously, and were so tame and unheeding that it was not difficult to approach them closely by stalking or even without cover, in a skilfully-handled boat, while their habit of bunching together both in the water and on wing, often made it possible to kill half a dozen or more with the discharge of both barrels of a light-weight gun. They were, moreover, highly prized for their flesh, which was rightly considered tenderer and better flavored than that of any other Duck occurring regularly at the Lake. Visiting it only during the southward migration in September, oftenest between the 8th and 16th, rarely before the 5th or after the 24th, they were wont to arrive by night or about daybreak and to pass on southward during the following night, although when the weather was stormy or lowering they sometimes came early in the afternoon and remained over more than one day. I have seen as many as forty or fifty in a single flock, but ordinarily there would be no more than twelve or fifteen, and frequently only six or eight. When the number did not exceed fifteen, the flock apparently consisted of a single brood of young, often accompanied by two adult birds of opposite sexes, presumably the parents, of which the drake was always still in eclipse plumage.

On September 15, 1888, three Blue-winged Teal were met with in a heavily-wooded reach of Cambridge River a mile above the mill; on September 25, 1895, another was shot in the same place; on September 23, 1896, fifty or more were found in one of the small ponds in the bottom lands of the Lower Magalloway; on September 23, 1889, eighteen were seen in Mettalluc Pond, not far from Richardson Lake; on September 14, 1900, a single bird was noted in a forest-encircled pond near Errol Dam. These are the only instances known to me of the local occurrence of the species at any considerable distance from Lake Umbagog, where its favorite haunts were the sluggish reaches and shallow, connecting, lagoon-like ponds of Cambridge River below Abbott's Mill, and of the Androscoggin River between the outlet of the Lake and Leonard's Pond. Next in favor was the retired and extensive cove lying to the westward of Great Island. In all three localities the birds appeared most frequently and numerously during seasons of exceptionally low water, when the Lake and rivers were almost everywhere bordered by mud-flats. For unlike Green-winged Teal, they seemed to prefer muddy to grassy shores, and obtained most of their food in shallow water comparatively free from vegetation, commonly gleaning it from the surface, although sometimes seeking it

on the bottom by immersing their heads and necks and "tipping up" their hinder parts after the manner of Black Ducks. Their general colouring is sufficiently like that of partially dried mud to make them inconspicuous and easily overlooked, when swimming near or standing on it, especially if its surface be diversified by rounded, slightly elevated lumps or mounds. They were among the most silent of all the water-fowl that frequented the Lake. Indeed, I cannot remember hearing them utter any vocal sound other than a low duck-like *quack*, repeated two or three times in succession and given, if my memory serves, only by wounded birds fluttering on ahead of pursuing men or dogs.

Blue-winged Teal rise easily and quickly from water or land with a clean, upward spring, much like that of a Black Duck, but less vigorous and seldom carried to so great a height. Although somewhat less swift of wing than Green-winged Teal, they fly faster than most other Ducks, and a single bird passing high overhead at maximum speed is no easy mark to shoot at. I know of few experiences to be had in New England more interesting to an ornithologist or more thrilling to a wild-fowl gunner, than that of seeing a large flock of these Teal coursing low or circling high, over pond, river, or marsh. As they incline now to this side, next to that, or wheel all together as at a given signal like well-drilled soldiers, the pale blue patches on their shoulders flash in the sunlight almost as brightly as so many bits of looking glass. Some of their aerial evolutions are performed quite as swiftly and gracefully as those of Plovers or Sandpipers, and all are admirably ordered and very pleasing to contemplate. After thus reconnoitring a pond or marsh, all the members of the flock may halt with surprising suddenness, when under full headway, and pitch down, not unlike Snipe, into water or grass. Sometimes they alight so very abruptly and unexpectedly, that unless attentively watched, they may seem to disappear quite mysteriously.

The heaviest flight of Blue-winged Teal known to have visited Lake Umbagog within my time occurred on September 14 and 15, 1880. The first day was cloudy with strong northeast wind and driving mist; during the second, the wind held in the same quarter and heavy rain fell unceasingly. I was staying at the Lake House that season, and constantly engaged in shooting, accompanied by Alva Coolidge, a congenial companion as well as an expert guide, and by my setter "Druid," an excellent retriever. Not long after we had started down river in a boat on the morning of the 14th, it became evident that we were likely to have more than ordinarily good sport, for wading birds

and water-fowl of various kinds were seen or heard in various directions. Six Blue-winged Teal were found in the first lagoon we came to, and three of them bagged. One that fell on the water with a broken wing went ashore and hid in the grass, where "Druid" first pointed and then brought it to me. After I had taken it from him, it slipped through my hands and returned to the water. When we followed it with the boat, it dove only when hard pressed, and then swam under water only a few feet at a time, but on the surface it dodged and doubled so successfully that we had no little difficulty in catching it. In the afternoon we were in the river near its mouth when a flock containing at least forty Blue-winged Teal appeared, coming in from the Lake. Approaching swiftly only a few yards above the water, in a broad, extended front, with slightly alternating elevation and lowering of their line of flight, they were passing within easy range when I pulled trigger. There was no answering report, for the cap failed to explode and I nearly capsized the canoe by leaning out over the gunwale to offset the expected recoil of the gun, which did not come. Before I could regain my balance the birds were beyond gunshot. We started after them at once, but had gone only a short distance when we came upon sixteen Teal of the same species, but evidently members of a different flock, swimming in the river. Keeping ever within a yard or two of a bare, muddy shore, now strung out in a long line parallel with it, next huddling close together, sometimes fading out of sight for a moment as their heads and necks were stretched out low over the surface of the water and their brownish backs brought against a background of brown mud, they came straight towards us, until the leaders were scarce fifteen yards away, taking not the least apparent notice of us. I have occasionally met with single Teal, or rather water-fowl which were equally confiding, but on no other occasion have I ever known so many collected together show such utter fearlessness of man. Even when, in order to avoid being surrounded by them, Alva began drawing the canoe backward with his paddle, they continued to ignore us and to glide steadily on, following us as we retreated. All the while they were feeding busily, making an uninterrupted smacking sound as they dabbled with their bills in the shallow water. It seemed — and indeed was — heartless to molest such unsophisticated creatures, but those were days when few New England sportsmen who valued their reputations ever neglected to take the utmost possible advantage of such an opportunity. Hence it was but acting up to precepts then followed, as well as sanctioned, by almost every one, when, at length, getting the Teal well together,

I fired into their midst, killing eleven out of the total sixteen by the discharge of both barrels of a rather light 12 gauge gun.

Nothing more was seen that day of the large flock of Teal, but early the following morning the engineer of the steamer discovered a similar number of birds, presumably the same, swimming in the pool at the foot of the rapids just below Abbott's Mill, within a few yards of his boat, and not over fifteen rods from the Lake House. He fired at them without effect when they flew off down river. An hour or two later we found them in the upper lagoon, where I killed twelve of them with four shots. Still later we came upon the survivors — almost, if not quite thirty in number — on a mud-bar at the mouth of the River. I could probably have slain at least half of them when, at our close approach, they huddled together in a compact bunch and crossed the bar, walking very gracefully and rapidly for Ducks; but not caring to do so, I contented myself with two more birds, singled out from the rest, and cut down after the flock had taken wing. During those two days I bagged, in all, thirty-one Teal, besides three Whistlers, eight Golden Plover, four Wilson's Snipe, four Pectoral Sandpipers, a Yellow-legs, and two Sora Rails. Of course I could not use so many birds myself, but it was a pleasure to bestow them liberally among friends staying at the hotel or living in the little village of Upton, and in the end not one of them was wasted. Among the guests at the hotel was Mr. E. A. Samuels, then making what, if I remember rightly, proved to be his last visit to scenes mentioned rather prominently in his Birds of New England. Late in the afternoon of the second day he joined me on the River, but got only one shot — at a single Teal, which he killed handsomely, as it was flying swiftly overhead.

From 1894 to 1898 inclusive, I spent every month of September at the Lake, yet met with Blue-winged Teal on but six different occasions, seeing in all just thirty birds. In addition to these, I heard of a large flock (already mentioned) which some gunners claimed to have found in a pond near the Magalloway River on September 23, 1896. Between September 2 and 22, 1900, I noted only a single bird — on the 14th of the month. Flying low over the lagoon in Curtis Meadow, it whizzed past me about on a level with my head, and so very near that I instinctively struck at it with a paddle. After alighting in the water and swimming ashore, it clambered to the top of an earthy mound and began dozing in the sun. Allowing the canoe to drift towards it before the wind, I actually got within ten feet of it before it awoke from its slumbers and walked slowly off over the mud, with head and neck stretched up. Soon after this it took wing and disappeared in the direction of the River.

Since the year last mentioned, I have not visited the Lake in autumn. From time to time, however, I hear from local guides and hunters concerning the shooting there. Judging by their reports it is fast coming to an end — because of the ever-increasing number of sportsmen, of permanent camps, and of noisy and ubiquitous motor-boats. There are still a good many Black Ducks and Goosanders and a few Wood Ducks and Whistlers but Blue-winged Teal and Hooded Mergansers are said to have well-nigh disappeared.

Spatula clypeata (Linné).

SHOVELLER.

Exceedingly rare transient visitor in autumn.

The above statement seems justified by the fact that I have yet to see a Shoveller, living or dead, in the Umbagog Region. The species is given a place in the list solely on the strength of the following entry made in my journal under the date of May 23, 1880:—

> In conversation with Mr. M. Wormell this evening I learned that members of his party have killed in Lake Umbagog *Spatula clypeata*, *Dafila acuta*, a flock of eight *Erismatura rubida* [*jamaicensis*], (the only ones ever seen by them) and *Tringa canutus*.

The Wormell party, as it was called, then visited the Lake every autumn and had done so for a number of years previously. It included several gunners who, having had long experience on the sea-coast of Maine, were familiar with most of the water-fowl and waders which appear regularly in New England. The leader, the late Munroe Wormell of Bethel, was intimately known to me at the time. He was an intelligent, truthful, and keenly observant man who took no little interest in birds, especially such as sportsmen are accustomed to pursue. It does not seem likely that he and his friends could have been in error with respect to the identification of so unmistakable a Duck as the Shoveller. Unfortunately I failed to ascertain (or at least to note) whether or not they met with the species more than once in the Lake. As nearly as I can now remember, they claimed to have shot only one or two specimens.

Dafila acuta tzitzihoa (Vieillot).

PINTAIL.

Uncommon transient visitor in autumn.
September 7 (1888)–October 20 (1884).

On October 11, 1884, Alva Coolidge and I saw seven long-necked, greyish-coloured Ducks which we took to be Pintails, flying together over the marsh near the mouth of Cambridge River. Two similar-looking birds were there on the next following morning. On the afternoon of the 20th, a single bird, swimming in the large lagoon near the mouth of the River, in company with two Black Ducks, was stalked and shot (by Alva). It proved to be a Pintail which, for some reason that I cannot recall, was plucked and eaten instead of skinned. My notes state that it was a plain "grey bird," but they fail to record its sex which probably was not definitely ascertained. On the afternoon of September 7, 1888, I was returning to Lakeside from the outlet in a Rob Roy sailing canoe, when I noticed four Ducks about two hundred yards ahead, swimming in deep wind-ruffled water well out in the Lake off Moll's Rock. The canoe, with all sail set, was scudding so fast under pressure of a strong breeze that there was barely time to get out the gun from under her forward deck, before she brought me within long range of the birds, when they first stretched up their necks and then flew, rising very like Black Ducks. As they did so I fired my choked, left-hand barrel at them, dropping only one member of the flock, which fell dead, and turned out to be, as I had expected, a Pintail. The specimen, a young female, is preserved in my collection. The other three birds looked exactly like it, and unquestionably were of the same species.

On the morning of September 12, 1895, I saw another Pintail near the outlet. It was with a Black Duck and on wing.

Although the records just given are all the definite ones my notes supply, I have repeatedly heard of other birds, supposed to be Pintails which were seen or shot in or about the Lake. Usually they were reported to me as "Grey Ducks," a name very generally applied to the Pintail by gunners throughout New England. While the combined evidence is perhaps insufficient to warrant the assumption that Pintails visit the Umbagog Region annually, it certainly indicates that a few may occur there almost every autumn, for the most part singly, but associating familiarly with Black Ducks.

Lampronessa sponsa (Linné).

Wood Duck.

Summer resident formerly abundant, now approaching local extinction. April–October.

There are few coves about Lake Umbagog, still fewer reedy pools in its bordering marshes, and almost no tree-embowered reaches along the lower courses of its three tributary rivers, in which I have not at one time or another seen Wood Ducks. Very many of these waters, as well as certain secluded woodland ponds at no great distance from them, used to be regularly haunted by the attractive birds. They were wont to appear in April, to finish laying their sets of eggs early in May, to bring out their fluffy, little ducklings not long after the first of June, and to leave for the South before the close of October — the greater number usually departing before the 10th of the month, and few if any lingering later than the 25th, the very latest date of autumnal occurrence furnished by my notes being the 27th (1885). Of their times of arrival in spring I lack definite knowledge, never having been at the Lake in season to obtain them, but according to the local guides and hunters, they invariably came before the ice had left the Lake, and almost if not quite as early as the first Black Ducks and Whistlers. Although less plentiful than Black Ducks and very much less so than Hooded Mergansers, they were always common in suitable places in spring, and sufficiently numerous and widely distributed in autumn to furnish no small part of the game on which camping parties of visiting sportsmen and native gunners were accustomed to rely for sport and food. Such in brief were the conditions during the earlier years of my experience. Nor did they change materially, so far as the Wood Ducks were concerned, during the greater part of it, for these birds, unlike the Hooded Mergansers (although similarly persecuted), continued to maintain themselves in practically undiminished numbers up to the very end of the last century. In the course of the next following decade, however, they were nearly all killed or driven away by the ever-increasing hordes of gunners. One man is said to have shot upward of thirty in Leonard's Pond in the autumn of 1907 or 1908. On August 5 of the former year, I saw two females swimming in a pool in the Cambridge River marshes. In June, 1909, I spent three weeks at the Lake without noting the species at all. Writing to me under the date of March 24, 1912, Alva Coolidge says: "Wood Ducks and (Hooded) Mergansers are nearly gone. I don't think I have seen one

for two or three years." As he continues to live at the Lake and to keep himself well informed respecting the water-fowl which frequent it, there can be little doubt, I fear, that it has well-nigh ceased to be visited by either of the birds just mentioned.

Before they had begun to decline in number, Wood Ducks bred very commonly about the shores of the Lake and along the wooded banks of the Cambridge, Androscoggin, and Magalloway Rivers, where large hardwood trees, that had been killed by inundations, offered innumerable snug nesting sites in hollow trunks and branches. The ample supply of such accommodations very near, if not directly over water, accounted no doubt for the fact that few, if any birds nested far away from it — as they often have to do in regions where the margins of lakes and rivers are comparatively treeless. During the month of May they were never much in evidence, for then the males led for the most part solitary lives in secluded places, and the females spent most of their time sitting on their eggs, taking, moreover, the utmost care to elude human observation, when approaching or leaving their nests, and commonly refusing to be driven from them by any amount of pounding at the bases of the trunks. Hence it was very difficult to find the nests, especially when, as was often the case, there are likely-looking cavities in almost every other tree. To climb to every one of these was a laborious and time-consuming task, too seldom rewarded by success to be often undertaken, save in localities where we positively knew the birds were breeding. Even then the search was much more likely than not to result in failure — because of the attendant difficulties just enumerated, and also of the fact that some of the nests were entered by crevices so narrow, jagged, and altogether unpromising, that they did not seem worth investigation. Only two occupied nests ever came under my direct personal observation. One of these found on May 21, 1880, was in a living elm of moderate size, growing on the eastern shore of Great Island, apart from any other trees and in water several feet in depth, the Lake being high at the time. As Alva Coolidge and I were passing the spot in a boat, we noticed a large, smoothly rounded hole which entered the trunk of the elm on the south side, at a height of some twelve feet above the water, and seemed to invite closer inspection. Nothing stirred inside in response to a shower of blows struck with an axe near the base of the tree, but when Alva began climbing it, a female Wood Duck came out in great haste and flew directly off, not to be seen again. On reaching the hole a few minutes later, I found that it led into a still larger cavity that descended almost vertically for a distance of about sixteen inches.

At the bottom were ten perfectly fresh eggs, not one of which could be seen from above, so perfectly were they covered by a dome-shaped mass of down plucked by the bird from her own breast.

The other nest just referred to was found on May 23, 1881, in a large, hollow, dead maple standing in water, at the edge of a flooded meadow, extending back from the Androscoggin River, about fifty yards below where it unites with the Magalloway. The entrance hole — of larger size than that of any Duck's nest that I have examined before or since — was a long, wide slit in the side of the trunk, not over five feet above the water. The cavity into which it led descended nearly two feet, or almost to high flood-water mark, as indicated on the trunk of the tree. At the bottom, lying on fragments of rotten wood, were seven fresh eggs, so nearly covered with down that only one was visible from above. They were stone cold, but before finding the nest we had seen a female Wood Duck swimming among drift-wood about fifty yards away, and twice that distance off had flushed a handsome male who, after flying only a few rods, alighted on the horizontal branch of a dead birch, where he sat for several minutes watching us. The presence of both birds so near the nest, the absence of the female from it, and the number and condition of the eggs, indicated, of course, that the set was incomplete. I took it, nevertheless, and, with the one obtained the year before, it is still in my collection.

The experiences just related, with other and less definite evidence which need not be given, have led me to infer that the Wood Ducks of the Umbagog Region seldom finished laying and began incubating before the 20th of May. A few, however, must have occasionally done so much earlier than this, for on June 1, 1880 — only ten days it will be observed, after one of my sets of fresh eggs was taken — I came upon a brood of newly-hatched young, accompanied by the mother, in Cambridge River, not far from the Lake House. On no other occasion that I remember were the young ever seen before the middle of June. When approached by men in boats, they behaved very like young Black Ducks, making straight for the nearest shore and hiding among grass or reeds as soon as it was reached, but scattering and diving adroitly if overtaken in open water. If well grown yet still unable to fly, they would sometimes escape by scuttling off over the water for considerable distances at a surprising rate of speed, using their unfledged wings, as well as their feet, after the manner of Goosanders. If left undisturbed, they seemed disinclined to wander far during the earlier part of the summer, and it was not unusual to find the same brood in nearly the same place for days or even weeks in

succession, haunting some stretch of tree-embowered river, or a muddy lagoon obstructed by snags and drift-wood, or perhaps a reedy pool in the open marshes. After they were two or three weeks old they seemed quite able to shift for themselves, and apparently were deserted for a time by the parent birds. Most of them began to fly by the middle of August and became strong of wing before the close of that month. The old drakes shed their handsome nuptial livery not long after the middle of June, and spent the remainder of the summer in "eclipse plumage." While in this condition they resembled females and immature males rather closely, but could readily be distinguished from these by their larger size and by the presence of more or less subdued red or orange in the bill.

The long-mooted question as to just how young Wood Ducks get from the hollow trees in which they are hatched to the water, used to be much discussed about camp-fires at Lake Umbagog. Some of the local guides and hunters asserted that the mother bird took them one by one in her bill, others that she carried several of them at a time on her back. Each of these conflicting opinions was backed by the testimony of men who claimed to have actually seen the young carried in one or the other manner, and whose word was commonly believed. I have no personal evidence to offer which bears directly on the subject, but Mr. David Loring, who formerly lived in Concord, Massachusetts, and whom I believe to be a perfectly trustworthy observer, has kindly furnished me the following account (which I quote verbatim from his letter dated January 4, 1911) of an interesting experience that he once had with Wood Ducks in Oregon.

> I have hunted for the past 30 years more or less along the Columbia River Bottoms, below Portland, Oregon, in the neighborhood of which great quantities of Wood Duck breed in timber lands of the foothills along the River. I had often heard the statement that the young were brought down to the water from their nests in the hollow trees, on the backs of the old birds and it was my fortune to see this done one day in July during 1895 when I was doing some surveying in Columbia County, Oregon. We were at luncheon close to the edge of a small lake or pond, when two Wood Duck, male and female skimmed close past us to the water with their young on their backs, the little ones holding on by their claws and bills. They were unable to bring them all at once and the male stayed with those brought and the female left, soon bringing down the balance. The moment the old birds struck the water, the little ones took to the water in the proverbial manner.

The old drakes ceased to be seen about the nests — and also, I think, to have anything to do with their mates — soon after the last

eggs had been laid. Their splendid nuptial livery was shed late in June or early in July. During the remainder of the summer, they were in garb essentially similar to that of females or immature males, from both of which, however, they might readily be distinguished (at least upon close examination) by their larger size, and by the presence of dull reddish or orange colouring on their bills. Perhaps they were somewhat ashamed of their dull "eclipse" plumage, for while wearing it, they were never seen with their mates or young or with water-fowl of other kinds and, as a rule, were met with singly, although we occasionally met two or three of them together. They began to reassume the gloriously brilliant and diversified plumage which they wear during the greater part of the year, and because of which they are so greatly admired, before the close of August. With some the change progresses so rapidly that birds which had fully consummated it were not infrequently shot as early as the 12th or 15th of September. With others it was delayed until towards the end of the latter month or even until well into October. Not long after its accomplishment, fine old drakes were often seen in company with adult females, presumably their mates, or with flocks of fully-grown young, but there were always a few who continued to lead bachelor lives. Whenever a flock was found to be made up of a pair of adult birds accompanied by not more than a dozen young, we used to regard it as possibly representing a single family, recently united. It might, however, contain as many as two or three full-plumaged drakes, and on one occasion — September 26, 1889 — no less than *four* consorting with ten or twelve females and young, were met with in Bear Brook, just above where it enters the Magalloway River, by Dr. Arthur P. Chadbourne and Mr. Henry M. Spelman, who were shooting with me at the Lake that autumn. Two of these drakes, which they killed and brought to our camp, were unquestionably old birds, and the other two looked exactly like them. It was too early in the season for any of the young males to be in full-nuptial dress. They sometimes begin to assume it by the middle of September, but I have never known one of them to complete it before the 15th or 20th of October. After that many of them resembled the older drakes so closely that it was often difficult, if not impossible, to distinguish between the two without resorting to careful dissection, and even this test did not always prove conclusive.

In autumn the Wood Ducks of the Umbagog Region ranged more widely than in spring and summer, and also sought more secluded haunts. After the shooting season began, they were not often seen by day about the Lake, although they might continue to come by night

to the marshes at the mouth of the Cambridge River or to those near the outlet. Albeit among the tamest and least suspicious of the local water-fowl, they seemed more sensitive to persecution than any of the others. If a flock were fired into and one or more of its members killed, there was little likelihood that the survivors would return that season to the same place, however much they might have been seen frequenting it. To a very few of their most favored haunts this rule did not always apply. Thus for many a year they might be found almost any day in autumn in Leonard's and Bottle Brook Ponds, although constantly harried there by gunners. Both these lagoon-like ponds were bordered by wild rice and various seed-bearing sedges, which supplied the birds with abundant food, and the shallow muddy water was dotted with projecting snags and floating logs on which they loved to bask in the sunshine. Scattered about the bottom lands of the Lower Magalloway and the Androscoggin, between the Lake and Errol Dam, were very many pools similar in character to those just mentioned, but of less extent, to which Wood Duck resorted more or less often. In all such forest-encompassed pools the birds could be stalked and shot without much difficulty, provided one made no noise. Their sense of hearing was quite as acute and discriminating as that of Black Ducks, and the snapping of dead twigs or the rustling of dry leaves, stirred by human feet, instantly put them on the *qui vive*. But their eyesight was far from keen and they would often overlook a gunner fully exposed to their view, but motionless. Even after having noticed him, they were likely to become quickly reassured and to resume feeding, if he remained immovable. It was especially easy to approach them when, at mid-day, they were basking in the sunlight on floating drift-wood. I have frequently seen as many as ten or a dozen squatting in a row on a water-soaked log, all with their breasts turned toward the sun and their heads buried in their scapular feathers, apparently asleep. Once I came upon five dozing thus on a long, slender snag that projected out far from the shore of Bottle Brook Pond, the outermost bird being fully ten feet above the water. They presented a singular appearance, and so resembled shapeless masses of drift-wood lodged on the branch, that I looked at them for some time before making up my mind that they were really Ducks. In the early morning and late afternoon one was likely to find most of the birds scattered about along the shores of the Pond, busily engaged in seeking food. Their usual manner of obtaining it was noticeably unlike that of the Black Duck and very similar to that of the Blue-winged Teal. Thus they gleaned it chiefly from the surface of the water by swimming

slowly to and fro, seldom grubbing for it on the bottom by immersing their heads and necks and tipping up their tails, as Mallards and Black Ducks so frequently do, and never attempting to obtain it by diving. They were especially given to looking for it in beds of lily-pads and other aquatic vegetation, where they would often pass and repass many times in succession over a space only a few yards square, or remain in one spot for minutes at a time, with their bodies almost motionless, but their lowered heads swinging easily from side to side with their bills among the floating leaves and stems, subjecting each of these to the closest scrutiny. In this leisurely way with comparatively little muscular effort, they evidently secured abundant food, the precise nature of which I was never definitely able to ascertain, although I think it must have consisted largely of the larvae of insects. While thus engaged the females and immature males might be easily overlooked, for their subdued colouring closely matched that of many of the objects by which they were commonly surrounded — such as withered leaves of pond-lilies or pickerel-weed, weather-stained drift-wood, and lumps of partially dried mud. The full-plumaged drakes, on the other hand, were usually very conspicuous — and obviously quite indifferent to the fact. There were occasions, however, when a bird floating immovable in deep shadow pierced here and there by shafts of sunlight, escaped notice, although near at hand and in full view. As a rule the members of the flock kept rather widely apart, each pursuing its own course, without much regard to the movements of the rest. Nor were they given to drawing closely together when danger threatened, as do so many other water-fowl. For this reason it was unusual to kill more than two or three of them with a single charge of shot, and I have never known more than four to be thus bagged. They showed no disposition whatever to indulge in noisy and boisterous gambols, such as those to which the Black Ducks and Goosanders are so prone, and but little if any tendency to playfulness of the mildest kind. Indeed their behaviour was at all times quiet, decorous and otherwise such as to suggest that they must be singularly mild, placid, and unemotional of temperament, yet not lacking in affectionate regard for one another, nor in gentle dignity of bearing very pleasing to behold. A touching instance of unselfish devotion on the part of one bird for another which, as will presently appear, could not possibly have been either its mate or immature offspring, came under my observation on September 13, 1888, at C Pond. Coming upon three birds feeding in company, I shot one on the water and missed another as it rose. The third, although certainly uninjured — at least by

either of my shots — did not attempt to fly, but after regarding me intently for a moment with upstretched neck, swam directly to the side of the dead bird whose fate it quickly shared. My subsequent regret at having slain it, was tempered by the reflection that in no other way could I have definitely established the interesting fact that both birds were *drakes in full resplendent* plumage. As for the one that escaped, I can say only that he looked exactly like the other two.

In the smaller woodland ponds Wood Ducks were often to be seen feeding near, or perhaps even in the midst of, flocks of Black Ducks, Hooded Mergansers, or Golden-eyes, but they seldom remained long with them nor ever accompanied any of them in flight, being apparently indifferent — if not also somewhat averse — to their society, although never obviously shunning it nor showing the least hostility to other water-fowl of whatever kind, when brought by chance into close association with them. Curiously enough, this evident disinclination on their part for the companionship of all Ducks not of their own species seemed to be respected, as well as recognized by all the rest. Thus while a stray Mallard, or Baldpate, or Green-winged Teal, would often join a flock of Black Ducks and accompany them for days in succession, wherever they went, I have never known such a bird attempt to take a similar liberty with a flock of Wood Ducks.

Being indisposed to needless exertion of whatever kind and especially, it would seem, to swimming any considerable distances, Wood Ducks seldom wandered about much in ponds and coves where food was plentiful, and where they were unmolested by man. Indeed it was not unusual for all the members of a flock to spend a whole morning or afternoon, if not an entire day, within the space of an acre or two. Of necessity they were less sedentary of habit when frequenting narrow and tortuous rivers, such as the Cambridge, where their feeding-grounds were rather widely scattered and nowhere of great extent, consisting for the most part of narrow belts of sedges or of aquatic plants, bordering sunny pools and reaches. This picturesque little stream continued to be for many a year, and at all times and seasons, one of their most cherished haunts. In the earlier days we were always sure of meeting with them in August or September at half a dozen or more places between Abbott's Mill and the Forks. Later we had to go beyond B Meadow, if not to the Sluice or even to the head of navigation in C Pond — a distance of fifteen miles or more — in order to be certain of finding them. We used to seek them in light canoes, paddled silently by skilled guides, taking the chances of approaching them under cover of the innumerable

bends and shooting at them as they rose, affrighted, from water or sedge. At the most one could not hope to bag more than three or four birds in the course of a single day. But the sport of hunting them never ceased to be fascinating — largely because of its uncertainties, and also because of the great beauty and variety of the river scenery.

The evening flights of water-fowl in early autumn to the marshes at the outlet and at Moose Point usually included at least a few Wood Ducks. Occasionally they appeared in rather large numbers, when it was interesting to watch them flitting about in the twilight like so many dusky shadows. Sometimes the whole marsh seemed alive with them, and their peculiar squealing cries came in quick succession from every part of it, mingling with the hoarse quacking of Black Ducks, the sweet, trilling songs of Swamp Sparrows, and the croaking of innumerable Leopard Frogs — often to be heard in warm autumn evenings. At Moose Point the incoming birds commonly dropped into the central portions of the marsh, avoiding its outskirts where the gunners lay concealed. For this reason, comparatively few were killed there. The best way of obtaining shots at them was to await their coming at some place plentifully strewn with their feathers, or where a flock had been marked down accurately the night before. For the same birds were accustomed to return evening after evening to almost exactly the same spots, usually flying straight to these, and settling down at once without much, if any, preliminary circling. This habit was equally characteristic of Wood Ducks at other times and places. Indeed I cannot remember that they ever took pains to reconnoitre carefully any of the ponds, coves, or river-reaches in which they alighted, being, it would seem, untroubled by that keen apprehension of lurking danger so often manifested by the Black Duck. Hence it was not difficult to ambush them successfully, if one only knew just when and where they would reappear.

Whenever the marshes bordering on the Lake were flooded in the month of September, Wood Ducks were likely to resort to them about as freely by day as by night, finding congenial shelter in extensive beds of half-submerged grass, and feeding greedily on the seeds of a species of Scirpus of which they, like the Black Ducks, were extremely fond. At such times they might be shot very easily, provided one could find them, being loath to rise from the dense cover afforded by the grass, and not always taking wing, until too late, when a carefully handled boat approached them in comparatively open water.

Wood Ducks, like Black Ducks, invariably go ashore as soon as

possible after having the wings disabled by gunshot wounds. Swimming slowly and evenly, with only the top of the head and a very little of the back showing above the surface, they present an odd appearance, somewhat resembling small alligators nearly submerged. Unless overtaken by a dog or boat or again shot at, they never dive but keep steadily on until the land is reached. Should it be well clothed with grass or bushes, they are likely to stop within a rod or two of the water's edge, but where no such cover is to be had near at hand they may go overland on foot to considerable distances, in quest of it. In the autumn of 1889 a bird that had fallen wing-broken into Bottle Brook Pond was trailed by my keen-nosed pointer "Don" for fully two hundred yards, through woods clear of undergrowth, over a ridge and down into a hollow beyond where it was finally found, squatting on a tuft of grass near a shallow pool. Fluttering out over this when the dog attempted to seize it, and eluding him by diving, just as he was about to overtake it, it was not again seen. Whatever became of it must ever remain an unsolved mystery. I looked all over the pool without detecting any trace of it, although the water was nowhere more than a foot deep and perfectly clear, while there were no weeds nor brush on the bottom, to which it might have clung with bill and feet — as wounded Ducks will sometimes do long after they have breathed their last, apparently preferring death by drowning to capture by dog or man. It could not possibly have returned to land without my seeing it, or without betraying itself by leaving fresh scent, which "Don" sought for everywhere in vain. There may have been, however, a Muskrat burrow entered under water and extending back below the surface of the ground, which furnished a secure refuge for this unfortunate bird.

Wood Ducks habitually rise from the water about as quickly and easily as Black Ducks, but they do not often leave it at so steep an angle, nor ever mount upward with the same impressive and suddenly developed impetus. That they can spring quite clear of its surface by means of their feet alone and without opening their wings, I have assured myself by observation of wounded birds viewed within arm's reach. When under full headway they fly swiftly, although somewhat less so than many other Ducks. From all others familiarly known to me they may readily be distinguished by their short necks and broad wings, by their comparatively slow and leisurely wing-beats, and by the loose formation of their flocks, the members of which rarely keep close together or in any regular order, but stream, as it were, athwart the sky at irregularly spaced intervals, a few commonly lagging far

behind the rest. They have, moreover, an odd habit of stopping abruptly in mid-air to twitch their necks and shake their wings convulsively a few times, before continuing on their way. This peculiar and characteristic action, interrupting for but an instant level and otherwise normal flight, is performed rather frequently at all seasons — sometimes by several birds in quick succession, as if the example set by the first was contagious and not to be resisted by the rest. Just what it means I have never been able to make out. It suggests an attempt to shake off something attached to their heads or wings. Possibly it may be due to irritation caused by the large tick-like parasites with which their plumage is much infested, but other water-fowl who never indulge in it are similarly afflicted.

No one possessing aesthetic taste, who has opportunity of watching, under favorable conditions and close at hand, a male Wood Duck in full plumage, can fail to be thrilled with wonder and admiration at the sight, or is likely ever to forget the experience, however often it may be repeated. For the bird not only wears a truly splendid livery, but also displays it to the best possible advantage, taking the most scrupulous care of it and carrying himself at all times, whether alone or in the presence of others of his kind, with a mixture of courtly dignity and dainty grace wholly untinged with vanity or ostentation and very pleasing to behold. It is said that even when paying court to his mate in early spring he still preserves his customary refinement of manner, never indulging in behaviour more or less undignified and grotesque, such as that to which male Mallards, Golden-eyes, and Eiders are given on similar occasions. Concerning this I am unable to testify from personal observation, however, never having been fortunate enough to witness the ceremonial of courtship, although I have often seen the paired birds together during and just before the period when the females were laying their eggs.

Wood Ducks are habitually silent birds, but when several of them are scattered about engaged in feeding, or approaching one another after brief intervals of separation, they utter, every now and then, a low but rather penetrating *pee-e-ee*, evidently a simple call or conversational note, common to adults and fully-grown young of both sexes. Another cry, rather startling by reason of its strong emphasis when heard near at hand, yet not carrying far, may be rendered *ō — ēēk*. This seems to be peculiar to the fully-mature drakes and by them is seldom used except when they are alarmed or suspicious of danger. There is still another note, much louder than either of those just mentioned and not unlike the familiar *o'clărk* of the Guinea Hen,

which single birds, flying about in evening twilight or swimming by day in ponds or rivers, apparently seeking companions which they have lost track of, sometimes repeat many times in slow succession. I have thought that it might be a characteristic call of young drakes, for it is not so very dissimilar to that of the old ones and I have seldom, if ever, heard it except in early autumn.

Nyroca americana (Eyton).

REDHEAD.

Rare transient visitor in autumn.

On September 12, 1880, Alva Coolidge and I noticed some Ducks swimming in the shallow, muddy pond just below the Lake House, in the Cambridge River marshes. He went around through the woods to stalk them, leaving me concealed in the grass by the River to intercept any that might fly that way. Catching sight of him, a pair of Black Ducks came out over me, and I bagged one of them. Undisturbed by the report of the gun, five birds remained in the water a little longer. Three were Hooded Mergansers. The other two looked at a distance like female Golden-eyes. They kept near the Mergansers, but not actually with them. When at length they rose and passed Alva, he killed one of them which proved to be a Redhead. Its companion was similar looking and almost certainly of the same species. The specimen taken was preserved and added to my collection. According to notes entered in my journal at the time, and based, no doubt, on evidence afforded by dissection, it was an adult male, "with yellowish brown irides." Reëxamining it now I find it to be a dull-coloured bird, having merely a brownish red head, but little black on the foreparts of the body, and generally faded, as well as badly worn, plumage. This subdued livery represents, I suppose, an "eclipse" condition, characteristic of all old drakes in summer and very early autumn.

A flock of fifteen Redheads appeared in the Lake somewhere near the outlet on October 20, 1882, when two were killed by a man named Watson. These specimens were seen and identified by Mr. Charles F. Batchelder.

The records above given are the only ones definitely known to me of the occurrence of the Redhead in the Umbagog Region.

Nyroca marila nearctica (Stejneger).

SCAUP DUCK. GREATER SCAUP. BLUEBILL.

Transient visitor in autumn, appearing regularly and not uncommonly usually during the month of October.

The Greater Scaup is — or at least used to be — seen in the Umbagog Region almost every autumn, sometimes repeatedly in the course of a single season. I have never known it to occur plentifully, however, nor often elsewhere than in the Lake itself. My field-experience with it there is so fully described in the Umbagog journal and note-books that I shall transcribe directly, and for the most part literally, from these, in preference to rewriting the account. Chronologically arranged, the more interesting entries read nearly as follows:—

1883, OCTOBER 22.— We found ten Scaups swimming in the Lake to-day about forty rods off shore near Great Island. When we first saw them they were diving for food, one or two always remaining above water, however, apparently to act as sentinels. As we approached in a boat, they all swam rapidly away from us precisely as Ruddy Ducks will do when thus disturbed. After a short chase we overtook them, when I shot two, both females. The remaining eight birds rose at the report of my gun and alighted a considerable distance off. After this they would not permit us to get within even long gun-range. When upwards of two hundred yards away and in the water, the males were easily distinguishable from the females by their black heads and necks and by the canvas markings of their backs; the white cheek-feathers of the females showed not less conspicuously.

OCTOBER 25.— The eight survivors of the flock of Scaups shot into off Great Island on the 22nd have been seen daily since then in Sargent's Cove, (about two miles from the first station), where we came upon them this morning. At first we could not get anywhere near them, but after brushing the boat, we succeeded in getting a long shot at them and I brought down two. One of these, falling wing-broken, dove with remarkable vigor and persistency, remaining under water for a surprising length of time and exposing only the top of its head on returning to the surface, when it sometimes uttered a rough croak not unlike that of a Goosander. On this, as well as on the previous occasion, I noticed that these Scaups floated buoyantly and loomed up large before becoming alarmed at our approach, but immersed their bodies deeply when they began swimming away from us. One of the birds I killed had in its throat two good-sized snails with shells and fleshy parts intact.

OCTOBER 27.— We found the Scaups again in the place where they were first seen off Great Island. They have become exceedingly shy, but by covering the bows of the boat with grass, we managed to get a long shot and I killed one of them. There were only five to-day. Thus one is unaccounted for.

Perhaps it left the flock and was the solitary bird that I bagged yesterday in Cambridge River, half a mile from the Lake.

1885, October 12.— A flock of thirty in the Lake off Moll's Rock. They were very shy, rising invariably before we could get within possible shot-gun range, flying low over the water in a dense formless cluster or ball, and alighting far out from shore in deep water. When on wing they uttered, at frequent intervals, a low *cuc-cuc-cuc*.

October 19.— Four Scaups, swimming in the Lake off the mouth of B Brook Cove at sunset this evening, were too wary to be closely approached. We heard one or more of them utter repeatedly a short, harsh, screaming cry, which we supposed at first to be some unusual call of a Loon.

1890, October 10.— On this date I found two Scaups in Leonard's Pond, but failed to secure either of them.

October 13.— Two flocks of ducks appeared in the Lake off B Brook Cove at sunrise this morning. One consisted of ten Greater Scaups, the other of six American Scoters. We started out in pursuit of them immediately after breakfast and followed them about all the forenoon, bagging three of the Scaups and four of the Scoters. They were all very shy and we had to brush the boat and paddle carefully to get within range of them. The Scaups joined the Scoters repeatedly, not only swimming, but also flying, in company with them. Sometimes the Scaups alighted close in shore, and once several of them actually landed and spent a brief time on some rocks at the water's edge, preening their feathers. In the afternoon we again saw the Scaup Ducks near shore in a sheltered little cove. Keeping our boat in a pathway of dazzling light cast by the low sun on the calm water, we approached, unnoticed, within thirty-five yards of them and I killed two more. The others flew only a short distance before alighting again, when they were joined by two Buffle-heads, but after this they were too alert to suffer further near approach.

1893, September 23.— While sailing near the middle of the Lake opposite B Brook Cove this afternoon, I saw four black-headed male Scaup Ducks swimming in company with an equal number of Velvet Scoters, also apparently mature birds. They all rose and flew off together, when I was still upwards of two hundred yards away.

In addition to the field-notes just reproduced I have many other briefer ones relating to Scaup Ducks shot or seen at Lake Umbagog. Occasionally one or two birds were found swimming in Cambridge River near its mouth; or in the Androscoggin just below where it leaves the Lake; or in the marshes about the outlet, when these were covered with shallow water; or in Leonard's Pond; while once (on September 22, 1889) a single bird alighted with some Black Ducks that I was watching in a forest-encircled lagoon that winds back through Sweat's Meadow from the Androscoggin River, not far from Errol Dam. All such instances of occurrences were exceptional, however, for, as has been said, the Scaups are given not only to confining their

annual visits very strictly to the Lake itself, but also, for the most part, to keeping well out of gunshot from its shores, in open and perhaps rather deep waters. No doubt they continue to revisit it more or less frequently, but I have not happened to meet with any of them there since September 26, 1898, when I saw seven birds, all apparently adult males, swimming together off Pine Point, and got within one hundred and fifty yards of them, before they rose and flew off out of sight up the Lake.

Nyroca affinis (Eyton).

LESSER SCAUP DUCK. BLUEBILL.

Transient visitor in autumn, apparently of very rare occurrence.

On the morning of October 30, 1884, I was looking for Ducks at the southern end of the Lake, in company with Luman Sargent, when we noticed one swimming close to shore, at the head of a little cove, about midway between the mouth of Cambridge River and what is now known as Lakeside Landing. It paid no apparent heed to the approach of our boat, which was well screened with evergreen branches and handled with consummate skill by the veteran guide just mentioned. When within thirty yards of the bird, I shot at it in the water. It dove instantly, and on reappearing took wing with equal promptitude, but was brought down by my second barrel. As it turned out to be a Lesser Scaup I skinned it, at the same time ascertaining by dissection that it was a young male. Unfortunately the specimen was afterwards lost, through careless handling on the part of a professional taxidermist, who undertook to renovate it for me. Before this happened, however, it was for several years in my collection, and was carefully compared with good series of both forms of the Scaup Duck, proving to be, as my notes state definitely, a "typical example" of *affinis*.

The instance just given is the only one known to me of the occurrence of the Lesser Scaup in the Umbagog Region. I may perhaps have seen the bird at a distance there on a few other occasions — mistaking it for the Greater Scaup from which, when living, it cannot certainly be distinguished, unless viewed near at hand and in a favorable light. The chances that any such error of identification was really committed by me appear rather negligible, however, in view of the fact that, with the single exception above noted, all of the very many Scaups that I have killed in or about the Lake were perfectly typical representatives of the larger form, *Marila marila nearctica*. Most of

them, moreover, were directly compared in life with still more numerous companions that escaped, among which not one bird differing from the rest in such a way as to suggest that it might be an example of *affinis*, was ever seen. Hence it seems justifiable to conclude that the Lesser Scaup must be a rare, if not merely a casual visitor to Lake Umbagog, although elsewhere in New England it is found rather commonly about inland ponds and rivers, where, indeed, it appears much oftener than the Greater Scaup, the latter species being chiefly confined to the sea-coast, and especially given to haunting salt-water bays and estuaries of wide extent but no great depth.

Nyroca collaris (Donovan).

Ring-necked Duck.

Rather rare transient visitor, known to occur only in autumn. September 19–October 17.

During my entire field-experience in the Umbagog Region, I met with the Ring-necked Duck on not more than five different occasions, and saw in all only ten or a dozen birds, but two of which were killed. The full record of the dates on which they were seen and of the few observations I was able to make relating to their habits is as follows:—

On the morning of September 17, 1886, Alva Coolidge was paddling me in an unscreened boat down Cambridge River below the Lake House, when we came upon a solitary Ring-necked Duck floating idly in mid-stream (here about one hundred feet in width), opposite Peaslee's Spring. Seeing us presently it first stretched up its neck to the full length and then rose on wing at a distance of fully sixty yards, leaving the calm surface of the water easily and indeed almost instantly, yet not at an abrupt angle. Before it had flown many feet, a single pellet of the charge of shot that I sent after it pierced its brain and it fell stone dead. It proved to be a young male, showing a good deal of black mixed with the brown of the head and neck, and made a beautiful specimen — still preserved in my collection.

Accompanied by Luman Sargent, I was crossing the flooded meadows at the outlet on October 2, 1888, when a smallish Duck, floating motionless with upstretched neck on the surface of shallow water, dotted here and there with beds or tufts of half-submerged grass, attracted our attention. It continued to regard us intently without moving, until our boat approached it within sixty yards, when it rose rather heavily and flew off very swiftly, apparently unharmed by

either of the two shots I fired at it. An entry made that same evening in my journal testifies that I felt "quite sure" at the time that this bird was a Ring-neck, but I am not now disposed to insist that it may not have been something else.

The identification of a pair of Ring-necked Ducks flushed on September 19, 1889, in the same marshes — again overspread with shallow water — was fortunately attended by no uncertainty whatever, for as they rose together, scarce twenty yards away, I saw their ashy grey speculums distinctly. One bird had a wholly-black head and was probably an old male in full plumage. The other looked like a female. Both escaped unshot at, for I was so placed in the boat as to be unable to fire at them without endangering my guide, who was rowing at the time. They returned to the same spot and alighted there, half an hour after this, but were too wary to permit another near approach.

On September 25, 1894, I once more met with Ring-necked Ducks near the outlet. There were six this time. After circling over the marshes they alighted in Leonard's Pond. Following them thither, Jim Bernier and I found them near the eastern end of the Island, crouched on the mud at the edge of the water. As we approached I could see that all were females or immature males. When our boat was still forty yards away, they scuttled into the water, and drawing close together, sat motionless with uplifted necks. I ought to have fired at them then, but waited, hoping to get still nearer. The next instant they flew, and I gave them both barrels in quick succession, killing one bird and wounding another which, unfortunately, escaped, making off by itself, with labored flight, over the woods. The other four went down the Pond and out over the Lake, flying very swiftly and in a compact bunch, like Teal. The bird that fell to my gun was a young male which I skinned, of course. On comparing it now with the one taken in 1886 I find that the two are almost exactly alike.

My fifth and last meeting with the Ring-necked Duck in the Umbagog Region happened on September 24, 1895, when a solitary bird, either female or immature male, was watched for half an hour or more in Errol Hill Pond. Being aware — or at least suspicious — of my observation, it kept out of gun-range from the shore in open water, cruising about restlessly and warily with upstretched neck. As this pond lies in the bottom of a deep, almost crater-like, hollow, hemmed in on every side by elevated wooded ridges, the water-fowl which frequent it are forced to mount high above it in spiral circles before they can leave it on wing. Black Ducks and Wood Ducks accomplish the ascent without much seeming difficulty or especial effort,

usually going almost straight out on steep upward inclines. Golden-eyes achieve it more indirectly and laboriously by rising in wide circles or spirals. The latter plan was followed by the Ring-neck when he finally departed, but he did not succeed in reaching the necessary elevation until after making three fruitless attempts — returning to and alighting in the water after each of these, to rest awhile before trying again.

Not only in the Umbagog Region, but also in Florida, (where this bird is — or at least used to be — very commonly represented in winter and early spring), I have noticed that the Ring-neck — unlike both species of Scaup — habitually shuns open water far from shore, except when seeking temporary asylum there; that its favorite haunts are weedy or grass-grown shallows in flooded marshes, along the margins of rivers and in small ponds and lagoons — even those buried deep in forests; that it never swims away from an advancing boat — as the Scaups so often do — or resorts to diving as a means of escape, unless wounded. Being neither especially shy nor overconfiding, it commonly awaits, without moving, the open approach of a gunner — whether by land or water — until he is almost, if not quite, within long range, and then takes wing. After rising on a slight incline to a height of thirty or forty feet and attaining full headway, it flies more swiftly than any other Duck I know, except the Hooded Merganser.

Bucephala clangula americana (Bonaparte).

GOLDEN-EYE. WHISTLER.

Very common summer resident. Said to occur in winter, also, in two localities.

Golden-eyes are invariably called Whistlers in the Umbagog Region, although it is unusual to hear there the peculiar humming-top sound to which they owe this name, and which they make so often when on wing near the sea-coast. They arrive from the south early in spring and linger late into the autumn, while they may be seen with Goosanders in mid-winter, in the quick waters of Rapid River and of the Androscoggin just below Errol Dam, according to Alva Coolidge. There has been no appreciable diminution in their numbers during the past forty years, although within that period the Hooded Mergansers — which once greatly outnumbered them — have become well-nigh extinct. Throughout the summer they seem to be more numerously represented than any of the other water-fowl, especially in the

Lake. After the shooting season begins, one sees much less of them and more of Black Ducks and Goosanders. What becomes of the bulk of the Whistlers and their young in September and October I have never been able to ascertain. They are, it is true, always to be found during those months in certain little woodland ponds too isolated to be much disturbed, but the total number of birds which resort to such sanctuaries is obviously much less than that of those which frequent the Lake and its immediate neighborhood in summer. It may be that some migrate southward, but this is not likely to happen as early as September. During this month, however, as well as in October, we occasionally met with a few Whistlers which seemed unfamiliar with the Lake and were believed to have come from regions further north. Perhaps there was a more considerable and unmistakable migration from that quarter still later in the autumn, but if so I never happened to hear of it.

Although Whistlers are accustomed to breed throughout the Umbagog Region and to visit, more or less often, practically every stretch of water, flowing or currentless, within its borders, they evidently prefer to haunt the coves of the Lake and the lower reaches of the Cambridge and Magalloway Rivers, whenever these are free from ice and not too much disturbed by gunners. They obtain most of their food by diving not far from shore, in open water ranging in depth from two or three to eight or ten feet, but sometimes seek it on or very near the surface, in grass-grown shallows. As a rule they are decidedly less gregarious than most Ducks, rarely consorting with any of the others, and not often forming flocks which contain more than eight or ten birds of their own kind, while very many of them are found singly or in couples. This unsocial tendency is most pronounced in late summer and early autumn. It is by no means confined to old birds, for the young almost invariably scatter widely before the first of August, when scarce half-grown and wholly incapable of flight, yet quite able, it would seem, to get their own living. After this it is unusual to see more than two or three together, until towards the last of October when small flocks, made up of both old and young and perhaps including adult drakes in full plumage, are not infrequently encountered. It is difficult to stalk old and experienced birds, even where there is excellent cover, and quite impossible to approach them openly and closely in a boat, even if it be screened with grass and carefully handled, for they have remarkably keen senses of sight and hearing and are ever alert and suspicious. Yet they will sometimes — although less often than Goosanders and Hooded Mergansers — incur

needless and very serious risks, by flying near boats which they cannot fail to see and might easily avoid, being either heedless or unaware of the fact that an expert marksman is almost as sure of killing them in swift flight as when they are in the water. The younger birds expose themselves rather often in this way, and are much less watchful than the older ones, when feeding close in shore. We used to shoot as many of them as we could, for their flesh is tender and well-flavored, although somewhat inferior in both respects to that of young Black Ducks and Wood Ducks.

Some of the more interesting experiences that I had at the Lake while engaged in the pursuit of Golden-eyes are described in my journal or note-books somewhat as follows:—

1883, October 27.— Whistlers rarely associate with water-fowl of any other kind, but I saw one to-day fishing in a flock of Goosanders. It flew off with them, also, when they rose on wing.

1884, October 23.— Found five Golden-eyes at the head of the extensive cove behind Great Island, and watched them for a considerable length of time as they fed along shore, just at the edge of the grass. All five were nearly alike and apparently young drakes. At a distance their heads looked almost black. They behaved not unlike Goosanders and were similarly active and playful, taking frequent short dives or lesser plunges, during some of which only the head, neck, and fore-part of the body were thrust beneath the surface; chasing one another to and fro or darting about singly and aimlessly, in every direction, as if they had lost their wits; making much noisy splashing, but no vocal sounds. While thus engaged they swam so deeply immersed as to show only a very little of the back, but later, after they had caught sight of me and drawn together well out from shore, they floated much higher, with their white breasts glistening like snow whenever they faced towards me. When at length they took flight, their wings produced a rather loud whistling sound not, however, quite like that which we hear on the sea-coast. As they came down the cove past me within long range, I fired at them, bringing down one which fell broken-winged into the water. After my guide had joined me with our boat, we pursued the bird for almost an hour before it was secured. It dove as quickly and persistently as any Grebe, often exposing only its head on coming to the surface, and always doubling back beneath the water, under or near the boat, when hard pressed or driven close in shore. The chase over the water ended with a dive from which the bird was not seen to reappear. Suspecting that it had gone ashore, we looked for it there and found it crouching beneath a prostrate log, at least six feet from the edge of the water. It remained perfectly motionless, making no further effort to escape, when we advanced and picked it up.

1888, September 4.— While crossing a cove of the Lake this afternoon, in a sailing-canoe scudding before a fresh breeze, I came upon a young Whistler,

fully grown, but with unfledged wings. At a distance of about thirty yards I shot at it, apparently without effect, when it dove instantly and doubled back under me, reappearing beyond gun-range and repeatedly uttering a feeble, strident cry, as it swam rapidly further off. After this I pursued for some time, but could not again get anywhere near it, for it had learned wisdom by experience and eluded me by the most adroit and tireless diving.

September 9.— A Whistler swimming in the Lake this afternoon kept calling *cr-r-ruck, cr-r-ruck*, very like a Wood Frog.

1889, September 6.— As nine Golden-eyes (which had just risen from a shallow pond in the Cambridge River marshes) passed me at a distance of about two hundred yards, I noticed that their wings were making a humming-top-like sound similar to that which we hear in winter on the sea-coast, but seeming less loud and distinct, although the air was perfectly still. I do not recall ever before hearing precisely this sound at the Lake. I saw the birds clearly enough to be sure that there were no old drakes in full plumage among them.

October 5.— Finding a solitary Whistler in Bottle Brook Pond this forenoon I shot it, after watching it for fully an hour. It was feeding in shallow water, (about two feet deep), and behaving at times in a rather peculiar manner. Sinking its body until only the top of the back remained exposed, and completely immersing its head and neck, it would swim with great rapidity in circles or zig-zags, kicking a foot up behind every now and then and making a loud splashing. Occasionally it would raise its dark brown head and for a moment or two float motionless, watching and listening. Sometimes it rolled over on one side like a Phalarope and swam a few yards in this attitude. It worked mostly around the edge of a large, grassy flat and about some isolated lumps of mud. Whenever it came to deep, open water it would paddle across this in ordinary Duck fashion but so very swiftly as to pile up the water in a silvery ridge just in front of its breast, like a fast sailing yacht "carrying a bone in her teeth." On dissecting it I found in its stomach a mass of water-beetles, but no traces of other food.

October 9.— A Whistler and a Hooded Merganser were the only birds seen in Bottle Brook Pond to-day. They swam over nearly all of it, keeping close together, the Merganser diving, the Whistler feeding with only its head and neck under water, like the bird I watched on the 5th. I followed them hither and thither for fully two hours, and finally stalked them successfully, killing the Merganser in the water and bringing the Whistler down with a broken wing as it rose. After diving twice it went ashore on the opposite side of the Pond, where we found it crouching among some grass, near and facing the water.

October 16.— An adult male Whistler in full winter plumage was seen diving for food to-day in the lagoon in Sweat's meadow. He regularly remained under water about half a minute at a time. Noticing us at length, when we were still fully three hundred yards away, he instantly left the water and began circling above the Pond, mounting higher and higher until he had

reached an elevation of at least one hundred and fifty feet, when he came out directly over us. I then heard the humming-top sound of his wings quite as loudly and distinctly as it has ever come to my ears on the sea-coast.

1890, October 25.— Visiting Errol Hill Pond late this afternoon, we found there — besides other water-fowl — two adult male Golden-eyes and two females. One of the drakes appeared to be in full-winter plumage. The other had a brownish head. The females came close in shore and made short dives, going down rather splashily like startled Muskrats. One of them occasionally uttered a gutteral *kruck* not unlike that of the Scaup Duck. The drakes kept well out of gunshot from the shore. One dove almost incessantly for upwards of an hour; the other slept for fifteen or twenty minutes at a time, with his head buried among the scapular feathers, turning around and around in one place at the rate of about one revolution per minute, apparently impelled only by the light air acting on his tail which was raised all the while. When, as happened twice, one of the drakes raised his body for an instant to flap his wings a few times, after the manner of most water-birds, he produced the humming-top sound as loudly and distinctly as I have ever heard it from a bird in flight, but when one of the females went through a precisely similar performance her wings made only a slight rustling noise. Is not the characteristic humming-top sound made only by the males and in its full volume and intensity only by those fully adult? If this be so, the fact that I have heard it at the Lake so much less often than on the sea-coast is no longer difficult to understand; for at the Lake one does not meet with full-plumaged Whistler drakes at all in summer nor very frequently in autumn, whereas they are always numerously represented in the flocks seen along the coast in winter and early spring.

1895, September 8.— As we were rowing down the Androscoggin River, just below where it leaves the Lake, a Golden-eye rose at least two hundred yards ahead of us. After flying across the marsh and circling far out over the Lake, it came back down the middle of the River and attempted to pass us within thirty yards, when I shot it. I have had similar experiences, on other occasions, with Golden-eyes as well as Goosanders. It is difficult to understand why birds so habitually wary and timorous should ever run such obvious and needless risks — especially just after they have risen, with evident alarm, far in advance of an approaching boat, and where there is unlimited open space in which to avoid it should it happen to be in the general line of flight which they desire to pursue.

September 14.— Early this afternoon Jim Bernier and I started out in our boat. Crossing the Lake to Moose Point we found two Whistlers swimming there near shore. I landed and attempted to stalk them, but when I reached the shore they were well out in the Lake and asleep, with their heads buried in their scapular feathers, swinging around and around as they drifted slowly before a light breeze. Seeing this Jim paddled towards them in the boat. He got within sixty yards of them before they noticed him, when they began swimming away from him, passing my place of concealment out of gun-range.

Circling half around them he drove them back, when they came close to me and I got them both, shooting one in the water and the other as it started to fly. Although young birds, they were in full-winter plumage with perfectly developed wing-quills. They must have been migrants which had just arrived from further north, for Golden-eyes bred about the Lake never behave as they did.

In 1896 I was at the Lake from May 12 to June 14, in 1897 from May 11 to June 15, engaged in studying, photographing, and to some extent collecting, birds and eggs, with the assistance of Mr. Clarence H. Watrous, a keen and persistent nest-hunter, to whose untiring search I was indebted for the subjects of some of my best notes, pictures, and specimens. My regular assistant, Mr. R. A. Gilbert, accompanied us in 1897, when we also had with us Charles E. Tidswell as cook and James Bernier as guide. During this second season we all lived together in a house-boat, built in the summer of 1896, and having in addition to comfortable sleeping accommodations, a bath-room, a kitchen, and a small but conveniently arranged dark room in which my negatives were developed. By sculling when the weather was calm, with the aid of a sail when there was a favoring breeze, we were able to change our ground whenever we wished to do so, although we often found it desirable to spend two or three days, and sometimes as much as a week, riding at anchor sufficiently far out in the Lake to escape the black-flies and mosquitoes or, when these were not too troublesome, moored to the shore at the head of some secluded cove, where the songs of shy forest birds came to our ears from every side and the delicious scent of the balsams stole in through the open cabin windows. From our floating house we made daily excursions, sometimes back into the forest, but oftener to various parts of the Lake, or along one or another of the rivers which flow into or from it. Altogether it was a delightful experience, full of interest, and not wanting in novelty, despite the fact that I had been long familiar with the region and its characteristic bird-life.

During the two seasons just referred to, we gave particular attention to investigating the breeding habits of the Golden-eye. This species was nesting abundantly and, indeed, in apparently undiminished numbers, at the Lake, especially in low-lying forests about the outlet and along the banks of the Magalloway and Androscoggin Rivers, where most of the trees had been killed about half a century before, by back water from the dam at Errol. Although many of them had fallen or had been cut down for fuel by camping parties of lumbermen or sportsmen, enough remained to furnish attractive nesting-places

for innumerable Woodpeckers, Bronzed Grackles, and Tree Swallows, a considerable number of Golden-eyes, a few Wood Ducks, and Hooded Mergansers, and an occasional pair of Goosanders.

All the Whistlers' nests that we found in 1896 and 1897, as well as all that I had seen in earlier years, were over water at heights varying from six or eight to fifty or sixty feet, in the hollow trunks of large deciduous trees such as elms, maples, yellow birches, and canoe birches. As the supply of cavities suitable for occupancy by nesting Ducks is limited, even where dead and decaying trees abound, and as the birds have no means of enlarging or otherwise improving them, they are not fastidious in the choice of them, but readily make use of any opening that can be made to serve their purpose. Thus the nest may be in the very bottom of a generous-sized hollow trunk, inside which the Whistler must clamber down or up from a distance of six, ten, or even fifteen feet, whenever she enters or leaves the tree, or it may well-nigh fill a cramped space within a foot or two of, and perhaps only slightly below, the entrance hole. This opening is commonly from six to fifteen inches in diameter and rounded or oblong, but occasionally it is so small and irregularly shaped that the bird has no little difficulty in forcing her bulky body through it. I once examined a nest containing eggs, to which the only access was by means of a vertical slit so narrow that it would barely admit my flattened hand.

The Whistler lays her eggs on fragments of rotten wood or whatever other débris there may happen to be at the bottom of the cavity, and places under, around, and perhaps also over them, exquisitely soft yet elastic greyish white down plucked from her own breast. It varies greatly in quantity in different nests. Some have only a little; others enough to fill the crown of a man's hat. As a rule full sets of eggs are warmly banked and completely covered with it, while there is usually more or less clinging to the edges of the entrance hole.

The number of eggs in a completed set is exceedingly variable. Occasionally there are but five or six, oftener from eight to ten, not infrequently as many as twelve or fifteen; while once we found no less than nineteen, all of which apparently belonged to one bird. It is by no means uncommon, however, for two or more females to lay in the same nest, and several of the rounded, pure white, extremely thick-shelled eggs of the Hooded Merganser are sometimes included in a set of the green, thin-shelled eggs of the Whistler. The whole bottom of the nesting-hollow, be it wide or narrow, is usually covered with eggs, while often they are in two layers, one above the other, or set on end

and wedged in together so closely that it is as difficult to remove the first as to take a book from a tightly-filled shelf.

I used to suppose that when tree-nesting Ducks lay in the nests of others, whether of the same or of different species, they must do so merely to save themselves further trouble by leaving their eggs to be hatched and their young to be reared, however unwittingly or unwillingly by the original occupant of the nest; thus behaving somewhat after the manner of certain Old World Cuckoos and New World Cowbirds, or still more nearly in that of the American Cuckoos, who only occasionally shirk the full duties of motherhood, and when doing so impose them only or chiefly on birds of their own or closely-allied kinds. In 1896 and 1897, however, evidence was obtained which has led me to think that the Golden-eyes — with perhaps the Hooded Mergansers and Wood Ducks, also — may have partially established a communal system, under which two or more females sometimes share with one another the task of incubating sets of eggs to which each has contributed, if not also that of bringing up their common offspring. I am still strongly inclined to believe, for reasons which will presently appear, that the Golden-eyes often — but not invariably — practise polygamy, sometimes to such an extent as to permit a single male to have as many as three or four wives at one and the same time.

The above statements of fact or inference are all based on personal observations made at Lake Umbagog, of which I shall now proceed to give a more detailed account, consisting mainly of passages taken more or less literally from my journal or note-books. Much of this matter, with some of that which here precedes it, has already been published, (Auk, July, 1900, **17**, p. 207–216), in nearly or quite the same form in which it now appears: —

1872, June 3.— A nest containing four eggs of the Whistler and one of the Hooded Merganser was found to-day by Gideon Stone, in a stub about fifteen feet above the water.

1879, May 18.— George Heywood took a set of fifteen Whistler's eggs from a nest fifteen feet above the water. They were all nearly fresh. The female was exceedingly shy, regularly flying from the nest before Heywood got within gunshot of the tree.

June 15.— Alva Coolidge has just informed me that he once found a Wood Duck sitting on thirteen eggs, seven of which appeared to be her own, while the remaining six were unmistakably those of the Whistler.

1880, June 1.— We found two Whistler's nests to-day near the outlet. One — in a small ash-stub about ten feet above the water and not more than fifteen inches below the hole that served as the entrance — contained three whole eggs, a fourth from which a duckling was trying to free himself, and three

recently-hatched young. The mother bird left the hole when we were at least twenty yards from the stub and flew off with her bill wide open, but in perfect silence, save for the light whistling sound made by her wings. The other nest — about twenty feet above the water in a big elm-stub — was entered at the end of a large broken branch, by a hole at least twelve inches in diameter that led into a still wider cavity descending fully three feet, at the bottom of which, with only a little down above them, were eleven Whistler's eggs, far advanced in incubation, and one egg of the Hooded Merganser. Approaching the stub silently in a boat, we rapped at its base with an axe, when a scratching or rattling sound began inside and was traced upward until, a few seconds later, a female Whistler emerged from the hole in the broken off branch, and at once took wing, croaking repeatedly as she flew away.

1881, May 20.— Near the outlet a female Golden-eye flew from an elm-stub when we were at least fifty yards from it, and approaching in a boat with very little noise. On reaching it we found that it was entered by a hole on one side, where a branch had rotted out; at the bottom, about five feet from the entrance, lying on rotten wood, were eight Whistler's eggs, so completely buried in down plucked from the bird's breast, that before this was disturbed by us not one could be seen from above. They had all been incubated three or four days. Within fifty yards of this nest another was found shortly afterwards, from which the bird did not start until we pounded the trunk of the tree — a live red maple having a hollow heart entered, about ten feet above the water, by a hole with smoothly-worn edges to which clung a little of the Whistler's down. There was abundance of this around and overspreading her seven eggs. They lay about four feet below the entrance hole and, like those of the other set, had been brooded several days. This second bird left her nest rather clumsily, descending almost to the water before getting fairly under way.

1896, June 1.— Watrous found a Whistler's nest this morning at Leonard's Pond about fifteen feet above the water, in a large red maple-stub to which the rough bark still clings, and close beside which stands a young living maple, apparently a sprout from the roots of the old tree. The latter is split off at the top, not far below which there is a long, ragged, vertical cleft four to six inches wide. In the crevice on a level with its base, is the nest, which contains ten eggs, *all standing on end* and crowded in so tightly that Watrous had some difficulty in extracting one of them. They were completely surrounded and covered with down, a quantity of which showed conspicuously at the bottom of the opening. Watrous saw a female Golden-eye flying away from the stub as he approached it, but he is not sure that she came out of the hole. Shortly afterwards a male appeared and circled above it. Two days before this he and I had seen a pair of Whistlers flying about over the Pond, one (the drake we thought) calling *qua-qua-qua* or *ca-ca-ca-ca-ca*. These notes were duck-like in quality and not unlike those of a female Mallard or Black Duck. The bird uttered them with great rapidity.

June 3.— Since first visiting the Whistler's nest at Leonard's Pond, we

have gone to it several times without again seeing any bird near it. The eggs were taken and blown to-day. They contained dead and rather "mushy" embryos. Hence it would seem that they must have been deserted — perhaps before we found the nest.

JUNE 5.— Soon after photographing the nesting-tree of the Golden-eye at Leonard's Pond this morning, thereby making considerable noise among the drift-wood that surrounds it, I was sitting quietly near it in my canoe when the sound of her wings attracted my attention to a female Whistler flying down towards the water. Just before reaching it, she swerved upwards and was quickly lost to sight among the trees. Quite evidently the bird had come from a large, hollow maple-stub, perhaps twelve feet tall and scarce twenty yards from the other tree. It had at its top a wide-mouthed cavity which, as I presently ascertained, went down about five feet. To get at the bottom we had to cut into the side of the trunk, when the nest was fully exposed to view. It held only five eggs, yet every one of these was far advanced in incubation. Never before had I known an obviously completed set contain so few. Although scarce half covering the level space available, they were, like the ten found on June 1, crowded tightly together and all on end, firmly embedded in rotten wood. There was only a little down about them, but this had been so disposed as to cover most of them.

Later this same day we were in Sweat's Meadow when a female Whistler came flying about us, calling *krur-krur-ca-ca-ca-ca-ca* every few seconds. What we took to be her nest was soon found in a tall dead larch pierced, at least forty feet above the water, by a nearly circular hole, scarce larger than that of a Flicker. Adhering to the edges of this, and also to some of the upper branches of the tree, were many fluffs of Whistler down, but the nest within the trunk contained only a single addled egg and many broken shells from which young Whistlers had evidently freed themselves not long before. If, as we suspected, they were even then swimming or hiding somewhere in the half-submerged meadow, the behaviour of the old bird was doubtless due to maternal anxiety on their behalf.

On our way back to camp late in the afternoon, we were paddling through a flooded forest not far from the mouth of the Magalloway, when I saw a Golden-eye fly from a hole near the top of a very tall ash-stub. Two others flew almost immediately afterwards from neighboring stubs, but we failed to mark the precise starting point of either bird. The hole in the tall ash could not be examined closely, for it was fully sixty feet above the water in a tree too rotten to be climbed with safety. It looked almost perfectly round and so small that it seemed impossible for a Whistler to pass through it, yet I had plainly seen one emerge from it. All these birds left their nests when we were one hundred or more yards distant and making but little noise. The first to fly may well have warned the others of our approach by her loud croaking cries, but how could she have become aware of our approach? And how can any Duck bring down her young in safety from such a height and through such a hole, unless in her bill?

1897, MAY 12.— On the way to the Lake House from Lakeside this morning we landed at Peaslee's Spring. Just as our boat reached the shore, a female Whistler flew from a hole in a big yellow birch which stands near the mouth of the brook that passes the spring and, at the season of high water, on the very edge of the swollen Cambridge River. Having heard that a Whistler had nested in this tree last year, I was looking directly at the hole when the bird came out, yet I failed to notice her until she was fairly in the air, so suddenly did she burst forth. Flying heavily past us, her wings whistling audibly, but not loudly, she alighted in the flooded meadow, some fifty rods off. Half an hour later and again in the afternoon, she and a Whistler drake were seen on wing together near the nest. It is entered about twenty feet above the ground by an opening in the side of the trunk, nearly two feet in height by some twelve inches in width, with edges everywhere rounded in by smooth bark, for the tree is still living and save for this cavity, apparently sound hearted.

MAY 15.— The big birch at Peaslee's Spring was revisited yesterday and again to-day. No bird was seen near it on either occasion, but when Watrous climbed it this morning he found in its hollow trunk, a little more than arm's length below the hole that enters it, a nest containing no less than *nineteen* eggs of the Whistler, literally piled one on another and uncovered, although there was an abundance of down under and around them. All were perfectly fresh and essentially alike in size and shape, as well as in colouring. Hence we were inclined to think at the time that they must all have been laid by the same bird. On reëxamining them in my collection now, I am not disposed to change this opinion. It is supported not only by the evidence just mentioned, but also by the fact that only one female Whistler was ever seen anywhere near the nest. Nevertheless, there may have been others that escaped our observation, that contributed to it eggs, indistinguishable from those of its rightful owner.

MAY 24.— Watrous took me this afternoon to a Whistler's nest which he had found earlier in the day, in an old maple-stub, standing on the shore of the Lake, near the landing at the Tidswell place, opposite Great Island. It was in what appeared to have been a Flicker's hole entered by a vertical slit, apparently the original opening somewhat enlarged by use or decay, yet still so narrow and jagged that it did not look as if a Whistler could possibly squeeze into it. There were, however, two large tufts of down clinging to the trunk near it, and these had assured Watrous of the presence of the nest within, although he had failed to start a bird from it by rapping on the trunk this morning. Nor did a most vigorous hammering with oar and paddle handles at the base of the tree when we reached it this afternoon produce any signs of life above. But when Watrous began to climb it, almost the first stab of his climbing irons was followed by the emergence from the hole of a female Whistler. Starting rather slowly and clumsily, with feet and legs hanging down, she flew off over the Lake, making an audible whistling sound (not of the humming-top kind, however) with her wings, and calling *kur-ruck, kur-ruck, kur-ruck,* in deep guttural tones. Alighting perhaps two hundred yards away,

she swam about for awhile, and then removed to a greater distance. Never before have I known a Whistler sit so very closely. The nest contained twelve eggs, three of which were fresh, the others representing every stage of incubation from that of one or two to seven or eight days. Four female Whistlers and a fine old drake were seen together in the water not far from the nest, when Watrous visited it this morning. Our cook, Charles E. Tidswell, says that Ducks of one or another kind bred in the stub regularly every season when he was living by the landing twelve or fifteen years ago.

May 26.— Watrous and Gilbert visited the region lying about the outlet of the Lake, finding there three more nests of the Golden-eye. One was in the tall dead larch in Sweat's Meadow, where egg-shells and an addled egg were seen last year. A female Whistler flew from the hole to-day when Watrous rapped the base of the tree. On climbing to the nest he found in it two of her eggs and *six of the Hooded Merganser*. One of the other nests was within seventy-five yards of this one.

May 30.— We sailed the house-boat up the Lake to-day and anchored near the edge of the flooded forest at the outlet where we intend spending a week or more. Soon after reaching this place we saw four female Whistlers flying together in a peculiar manner over the trees, now rising high in air, next descending and dashing among the trunks and branches, vibrating their wings rapidly and continuously as in ordinary flight, but describing circles about a remarkably tall stub with a shattered top. Around this they would pass a dozen times or more, gradually drawing nearer until one bird leaving the rest and pitching first downward, then sharply upward, would fly directly toward the stub and try to alight on its jagged top. The attempt usually failed, when the bird, continuing its flight, would disappear among the trees, presently returning to begin circling again; but twice it gained a foothold and remained perched for several seconds, although it had to keep its wings in constant motion to maintain its balance. Sometimes its flight was directed to a point near the top of the tree where there was a round, neat-looking hole, no doubt the entrance to a nest, for we afterward saw two Whistlers emerge from it in quick succession. We thought that all four birds tried in turn either to alight on the stub or to enter the hole, but as we could not distinguish between them, and as no two made the attempt at the same time, this impression could not be verified. They were silent for the most part, but occasionally one of them would utter a sound not unlike the quack of a Black Duck but shorter and flatter and repeated very rapidly six or eight times.

May 31.— In a short, hollow maple trunk where a Whistler nested last year we found this morning a set of eleven eggs, none of which were covered with down, although all were evidently near hatching. The nest is within thirty yards of the tall stub about which the four Whistlers were circling yesterday. The entrance is at the top about twelve feet above the water.

June 2.— The greater part of to-day was spent in Bottle Brook Pond where the water is now quite six feet above its autumn level, covering most of the low alluvial land lying between the Pond and the River. Here we could paddle

about at will among the fine old maples, some of which are upwards of eighty feet tall, with trunks three or four feet through at the base. It would be difficult to imagine a place better adapted to the needs of arboreal nesting Ducks than this ancient flooded forest, for many of the trees are dead or dying, and they abound in holes and crevices of various shapes and sizes. On entering the Pond we started five female Whistlers from somewhere near its further end. They returned to it at intervals through the day and circled high over it, calling *kur-ruck*, *kur-ruck*. Twice they were accompanied by a *single drake* — a fine old fellow in full-nuptial plumage. Watrous soon found two of their nests, both in natural cavities in maples, only about eight feet above the water. One was evidently a last year's nest — lined with matted and disordered down, and having no eggs or even egg-shells. The other contained seven eggs. There was no down under or about these; spiders had spun a close netting of web across the cavity just above them; and they were badly stained and also encrusted with fragments of rotten wood which had dried firmly on their shells. Hence we supposed they must have been deserted, especially as no bird was seen near the tree, but when blown on the following day, six of them proved to be perfectly fresh. The seventh was slightly cracked and only about half filled with a substance that resembled damp corn-meal. This egg was unlike the others in shape. We thought that it might have been in the hole over winter, from the preceding summer.

Later in the day, as we were eating lunch on shore, a third nest was found by watching the bird. She first alighted in the water near the tree and spent fifteen or twenty minutes swimming or drifting aimlessly about, sometimes preening her feathers. Then she flew out over the Pond and turned back towards the tree, describing a great loop and rising gradually until she had attained an elevation of about twenty feet, when she made swiftly and directly for the entrance to the nest, which was about thirty feet above the water. On nearing it she continued to keep her wings in rapid motion, but checked her speed very considerably at the last moment by pitching sharply upward eight or ten feet, just before reaching the hole. Some intervening branches unfortunately prevented us from seeing how she entered it. Half an hour after this we paddled quietly across the Pond to the tree. As soon as I was in position to command a good view of the hole, Watrous struck the stub, only once and but lightly, with his paddle. The blow was immediately followed by a scratching sound in the hollow trunk above, and the next instant the Whistler shot out over our heads. Although watching the hole intently I actually did not see her leave it. She seemed, indeed, to burst forth at nearly full speed, as if her flight had been begun within. That a bird so heavy and clumsy could emerge from such a place so dextrously, and get started on wing so quickly, was certainly most surprising to behold. Not that this particular hole was exceptionally small. On the contrary it was of rather generous size. Its shape and position are shown by a photograph that I took of the tree.

JUNE 7.— Yesterday at 3 P.M. Watrous examined the Whistler's nest

found May 31. Several of the eggs were chipped. This evening, just before sunset, he found all but two hatched and the nest filled with the pretty ducklings. The old bird was sitting on both occasions. To-night she returned and reëntered the hole before Watrous had paddled one hundred yards from the tree.

JUNE 8.— I visited the Whistler's nest shortly before daybreak this morning, approaching it with great caution. The old bird was absent and at first I feared that she had removed her young during the night, but on looking into the hole I was delighted to find them still there, huddled closely together in a circle, and shivering a little, for the air was keen. There were, however, only *six* of them with the two eggs still unhatched. What can have become of the remaining three eggs or young? Watrous tells me that he did not count the eggs on the 6th, nor the young last evening, but he is very certain that none of the eggs were missing on the former occasion, for the nest seemed to be full of them, and the absence of as many as three would have left a gap that he could scarcely have failed to notice. He is less sure that there were more than six young and two eggs last night.

Feeling confident that the young must leave the nest sometime during the day, I determined to see, if possible, how they would accomplish it. Accordingly after examining the nest, I concealed my boat about thirty yards from the tree and stretching myself at full length on the bottom, with my head raised just enough to enable me to look over the gunwale, remained there for nearly two hours. Nothing of interest happened until 5.10, when a female Whistler came from the direction of the Magalloway and without any preliminary circling dropped into the water within a few yards of the nest-tree. After floating motionless for about two minutes with head and neck erect, evidently watching and listening intently, she flew directly to the hole and alighting on its edge, perched there for an instant, flapping her wings a little to maintain her balance. She then popped in, throwing up her spread tail just as her body disappeared, much as a Duck does when diving. I saw nothing more of her during the next hour, but soon after she entered the nest two other female Whistlers flew over and around me several times and one of them finally alighted on the water and swam to the base of the stub, looking up at the hole intently as if she, too, had some interest in it. On several occasions within the past few days we have seen three or four Whistlers hanging about this nest. These facts lead me to suspect that they have been taking turns at incubating the eggs and that one of them may have taken away the three missing young.

At 6.15 I returned to the house-boat for breakfast and Gilbert took my place. It was arranged that he should shout if the Whistler began taking out her young while I was away. I heard his signal just as I was preparing to go back and when I rejoined him found that I was too late. This is his account of what happened during my absence:—

"At 6.45 the old Duck appeared at the entrance to the nest, where she sat for five minutes moving her head continually and looking about in every

direction included within her field of vision; then she sank back out of sight, reappearing at the end of a minute and looking about as before for another five minutes. At the end of this second period of observation she flew down to the water and swam round the stub three times, clucking and calling. On completing the third round she stopped directly under the hole and gave a single loud cluck or call, when the ducklings began scrambling up to the entrance and dropping down to the water in such quick succession as to fall on top of one another. They literally *poured* out of the nest much as shot would fall from one's hand. One or two hesitated or paused for an instant on reaching the mouth of the hole but the greater number toppled out over the edge as soon as they appeared. All used their tiny wings freely, beating them continuously as they descended. They did not seem to strike the water with much force.

"While this was going on the old Duck sat motionless on the water, looking up at the nest. When the last duckling dropped at her side, she at once swam off at the head of the brood, quickly disappearing in a flooded thicket a few rods away."

In this connection it may be well to dwell for a moment on some of the statements which have been made by writers as to the manner in which the young of tree-nesting Ducks leave the nest. Dresser affirms (Birds of Europe, **6**, p. 600) that the young of the European Golden-eye "are carried by the female in her beak down to the ground or to the water, one after another being taken down until the entire brood is taken in safety from the elevated nesting-place; and I have been assured by the peasants [of Lapland and Finland] that this always takes place in the dead of the night."

Wilson was told by a person who lived within twenty or thirty yards of a tree in which a pair of Wood Ducks had nested for four successive years that "he had seen the female, the spring preceding, carry down thirteen young, one by one, in less than ten minutes. She caught them in her bill by the wing or back of the neck, and landed them safely at the foot of the tree, whence she afterward led them to the water."

Audubon, in his justly celebrated account of the Wood Duck — one of the best and most complete bird biographies that has ever been written — says: "If the nest is placed immediately over the water, the young, the moment they are hatched, scramble to the mouth of the hole, launch into the air with their little wings and feet spread out, and drop into their favourite element; but whenever their birth-place is at some distance from it, the mother carries them to it one by one in her bill, holding them so as not to injure their yet tender frame. On several occasions, however, when the hole was thirty, forty, or more yards from a bayou or other piece of water, I observed that the mother suffered the young to fall on the grasses and dried leaves beneath the tree, and afterwards led them directly to the nearest edge of the next pool or creek." (Birds of America, 1843, **6**, p. 273.)

Mr. Fred Mather has contributed the following account of how young Wood Ducks, bred in captivity, leave the nest: "Some writers claim that the mother

takes them in her bill and others say that she carries them on her back. I had a string of pens back of my house; a pair in each, for they are better to be separated, and usually I found the mother and her brood on the water in the morning; but, on two occasions I saw them leave the nest. The mother went first to the pool and called; she had brooded them for twenty-four hours, or more, and they were strong. Then one after another the little things climbed out of the box and tumbled to the ground, or to the water.

"They had to climb 4 to 6 in. of plain board, but they did it. I have seen them climb a 10 in. base board and go through 1 in. poultry netting when alarmed. They weigh nothing worth mentioning, and they have claws as sharp as cambric needles. They have pricked my hands until they bled when pinioning them at eight weeks old. I can easily believe that they can climb up a hollow tree and drop 20 ft. into the grass without injury. What need of such sharp claws and climbing ability if not for leaving the nest?" (Forest and stream, 1899, **52**, p. 205.)

Audubon's assertion that the female Wood Duck occasionally carries her young in her bill is so brief and guarded in comparison with the remainder of the vividly written paragraph in which it occurs as to suggest that it may not have rested on his personal experience, while Wilson's account was confessedly, and Dresser's, quite evidently, taken at second hand and on the evidence of obscure and untrained observers. It is by no means impossible, of course, that tree-nesting Ducks occasionally take their broods to the water in the manner described by these and other writers, but if this be so the fact remains to be definitely established.

During my first visit to the Whistler's nest this morning I removed one of the young and took it with me to the house-boat, intending to return it after breakfast. The sudden departure of the mother with the remainder of her brood frustrated this plan and I kept the pretty little creature for two days, glad of the opportunity to try a few experiments with a wild Duck which had never seen water. I first put it on the deck where it ran about freely, standing and moving in a nearly erect position, lying prone with half extended wings when tired. It frequently called *peep-peep-peep-peep-peep-peep* in shrill, piping tones, much like a young Turkey. It did not appear to be either shy or apprehensive, but, like many young birds, it was exceedingly stubborn and wilful, giving me the greatest trouble to photograph it, absolutely refusing to remain where I posed it, although it would settle quietly enough almost anywhere else. I next put a shallow pan filled with water near it. It ran back and forth through the pan many times without taking the least apparent notice of the water.

Shortly after this it was placed suddenly but gently in a tub filled to the brim with water. For at least a minute it remained floating in one spot, looking about with evident bewilderment, but seemingly without fear. Its feet and legs hung loosely down and were occasionally twitched slightly. Presently it began using them as paddles, slowly and hesitatingly at first, afterwards more confidently, although more than an hour passed before it learned to swim at all fast or vigorously.

When it had mastered this accomplishment it tried climbing over the edges of the tub. We then removed about half the water, but the little bird went up the sides almost as nimbly as a mouse, clinging with its tiny claws to the soft wet wood. By noon it had learned to leap ten or twelve inches straight upward either from the water or from the bottom of a box. The muscular power and vigor of its stout legs were indeed remarkable, and it seemed to get as firm resistance for an upward leap from the water as from the surface of a board. One of the first things it did on being placed in the tub was to begin picking up various small objects such as bits of bark or weed which were floating in the water. It apparently swallowed some of these fragments, but we were unable to find any food which it seemed to relish, although it was quite willing to try everything we offered it. It ate a very little egg-yolk, and some wriggling fragments of earthworms excited it greatly at first, but after getting them well down its throat it ejected them with evident disgust. While engaged with them it dropped a piece which began sinking slowly. It at once thrust its head beneath the water and tried to catch the descending morsel. This was the nearest approach to diving that we saw it make. It drank often and copiously and bathed freely, afterwards preening and drying its downy plumage with great patience and thoroughness, using its bill like an old bird.

The following morning our little Whistler was alive but feeble and depressed. As it would eat nothing that we had to offer, we took it to the flooded forest and putting it on a piece of floating drift-wood near the foot of the tree in which it had been hatched, backed the boat off a few yards and left it at freedom. It stood erect and motionless for a minute or two looking about; then entering the water began swimming, at first slowly and in evident bewilderment. But very soon it gained confidence and struck out more boldly until at the end of a few minutes it was darting hither and thither, skimming the surface as lightly as a fluff of thistle down and in courses as erratic as those of the lucky-bugs whose gambols it disturbed. Now it sipped the water eagerly, next picked at a floating leaf or darted after some small aquatic insect. Every now and then it would raise the forward part of its body and flap its tiny wings in the manner of an old Duck. The floating sticks and rafts of dirt that covered a large part of the surface did not embarrass its progress in the least, for it crossed them either by running or by a succession of short, quick leaps as nimble as those of a small frog. Poor little waif! It was pathetic to see it start off thus alone and unprotected on its perilous journey of life, rejoicing evidently in its freedom and the novelty of its surroundings, but quite unconscious of the dangers which lay before it. I could only hope that one or the other of the female Whistlers which we started from the water near the nest-tree would adopt and care for it, and I was glad to see one of them fly back to the spot after we had departed.

The journal furnishes the following account of the behaviour of a brood of young Golden-eyes, watched in Lake Umbagog on June 14, 1909: —

At half-past eight o'clock this morning, a female Whistler accompanied by eleven young, entered the sheltered little cove where our house-boat is now lying. She was a large bird with light brown head and entirely black or blackish bill. The young were about the size of newly-hatched Plymouth Rock chickens, and certainly not more than a week old, if as much as that. When I first saw them they were within sixty yards of the house-boat, swimming in single file and *literally touching* one another as they followed in the wake of the mother, the leading young bird being perhaps two feet behind her. In this order they cruised back and forth across open water for several minutes, the mother bird keeping her head and neck stretched up, and evidently devoting her entire attention to the house-boat, which she seemed to regard with no little suspicion. But as my two men had joined me in the cabin, where we all remained quiet for awhile, she soon led her brood into calm shallow water close under the overhanging trees and shrubs that fringed a neighboring shore. Here began one of the prettiest and most interesting scenes in bird-life that it has ever been my privilege to witness. First the mother disappeared beneath the surface, as I supposed to obtain food for her young. But the latter, to my infinite surprise, quickly followed her example, after scattering over a space of four or five square yards. Sometimes five or six at once, oftener following one another in rapid succession, they dove and dove and dove again, with all the energy and decision of mature birds. Not infrequently they made the plunge without much apparent effort, cleaving the water so deftly and smoothly as to leave scarce a ripple, like so many tiny Grebes, but rather oftener they sprang forward and upward almost clear of the surface, showing a strong arch to the line of the back and neck and kicking up tiny jets of flashing spray just as they were lost to view. On reappearing, they invariably came up with the body horizontal and the head and neck at right angles to it, *bobbing* up like so many corks suddenly released from below and rising, by their extreme buoyancy and the impetus it gave them, appreciably above the level of their normal "water lines," before settling back to these again. Quite evidently they were *getting their own breakfasts*, apparently without the slightest assistance or even direction from their mother who, indeed, seemed to be completely engrossed in the task of obtaining food *for herself*, often at some distance from them. At least I could not see that she paid much attention to them or gave them signals of any kind, while she certainly did not offer them any of the food which she secured. By degrees the mother and young worked slowly down along the shore, until they were within less than forty yards of our big boat. I could now watch them to great advantage through my glass, for they were in smooth, open water, although close to shore, and the sunlight struck full upon them. A little further on they came to a quantity of drift-wood, among which the ducklings scattered widely, still diving for food and making no attempt whatever to glean it from the mossy, water-soaked logs and floating trash of various kinds, as the young of surface-feeding water-fowl like the Black Duck and Wood Duck are accustomed to do. Whenever one of the young Whistlers became widely separated and lost to view of the rest, it would

set up a thin, shrill *peep-peep-peep-* ing very like that of a young Turkey, and presently would appear running over the surface with surprising speed, and with almost the whole body, except the hinder part, quite clear of the water. Sometimes the entire brood would scud thus for a distance of several yards to rejoin their parent, reminding me of a string of dry leaves impelled by a strong wind. The broad, rounded spots or patches of white on the sides of the heads of the young showed conspicuously at all times, and often were all that one could see, especially when the birds were in deep shadow under overhanging banks or foliage.

After watching the brood for more than half-an-hour, I reluctantly gave permission to my men to resume their work. They at once began nailing a pole to the side of the cabin, making a great racket in the quiet, land-locked cove. This, oddly enough, did not seem to alarm the Whistlers who, indeed, paid little attention to it, merely swimming a few rods further off along the shore. An hour later when the men were inside the cabin again, the young with their mother, emerged from the stubs at the head of the cove, and swam quietly towards us, until they were within twenty yards or less of the house-boat. Here they busied themselves among some floating logs and in the open water, while I sat in a reclining chair on deck in full view of them, keeping them under my glass. It seemed incredible that birds ordinarily so wary here could so quickly have become thus tame and confiding. If one of the men walked along the deck they would retreat only a few yards, and they withdrew but little further when a boat was paddled ashore. Although not apparently playful, the young were as active and energetic as ants, diving incessantly for food and frequently scurrying to and fro. Whenever they came to a floating log, they would spring directly from the water to its top, a total distance of perhaps a foot, with a vertical rise of at least five or six inches. They skipped about over logs and drift-wood as freely and nimbly as so many Mice, sometimes by running, sometimes by a succession of frog-like jumps where intervening spaces of water had to be cleared. The mother Whistler crossed these obstructions in a more sedate manner, walking easily enough and rather gracefully, with none of the waddling motion of the tame Duck, but with the body carried similarly, *i.e. horizontally*. Six of the young finally ranged themselves in a row in the sun on a floating log, and spent some time in preening their downy plumage, while the rest of the brood, with the mother, continued feeding. During this period the young kept up a low conversational peeping or twittering, while the mother answered them every now and then with a guttural, almost growling, *krur-krur-kr-r-r-r*. Once, when startled by something on the boat, she gave a loud, high-pitched squawk, unlike anything I had ever before heard a Whistler utter. When swimming at ease and slowly, she habitually swung her head and neck forward and back precisely like a Mud-hen (Fulica). She dove with admirable ease and grace, spreading her tail wide, and slightly parting the tip and terminal third of the wing from the side of the body, just as she disappeared. As the water was very shallow, (about three feet), she had not far to go, and she rarely remained under more than eight or

ten seconds, and often not over five. Thrice I saw her bring up something of a vegetable character that looked like a strand of eel-grass. This she shook violently in her bill and finally swallowed, without offering any of it to the young, although several of them were close about her at the time. The brood swam out through the open channel at the west of the island and were lost to our view, shortly before noon.

About 3 P.M. the Whistler mother and her young reappeared off the main entrance to the cove outside the boom of logs that closes it here. At first they were close in under the lee of the island, but the mother soon started out into the Lake where the wind was blowing a gale and white caps were rolling high. The young followed her for about fifty yards. For a time they seemed to enjoy the buffeting of the big waves which tossed them up and down like chips and they even dove a few times, apparently for food. But they soon became alarmed or apprehensive and turned back, leaving the mother. She called and called, (the *krur* call), evidently to encourage and reassure them, but they kept on back to the island, and she finally followed them. As she was swimming in, another adult female Whistler swept down and hovered over her a moment, but did not alight. After the mother had joined her young she started straight for the boom. It had four logs abreast with spaces varying in width, between them. Upon reaching it she dove and passed under it, emerging on the other side. When the ducklings came within a foot or two of the outer log, they *sprang*, one after another, to its top, and thence in quick succession over all of the spaces of open water beyond. Some of their leaps must have exceeded a yard in length and twenty inches in height, yet they made them with apparent ease and with such precision that they alighted on the logs without the least seeming loss of balance. Nor did they hesitate, or even pause for more than a fraction of a second, before essaying the next spring. Thus they were almost constantly in motion. When, as repeatedly happened, several were in the air at once they looked, for all the world, like so many agile frogs chasing one another. The final leap was from the fourth log to the calm water just inside the boom, which they struck as lightly as falling leaves. Of all the things I saw them do this day that just described was by far the prettiest and most interesting. The more I thought about it the more surprising it seemed that web-footed birds so very young should possess the vigor and expertness requisite for the accomplishment of such a feat.

After the Whistlers had passed the boom and become reunited, the mother crossed the cove with her ducklings trailing out behind in single file, each with its bill just touching the bird next in front and the bill of the leader just touching the tail of the mother. Literally there was no visible gap anywhere in the string of swimming birds. They followed much the same course around the shore which they had taken in the forenoon, diving incessantly, and again entered the flooded group of ashes and maples at the head of the cove. Here I lost sight of them for half an hour. At the end of that time the mother attracted my attention by giving the peculiar squawk heard earlier in the day. This note was repeated scores of times, with ever-increasing shrillness, until

it became almost a shriek, somewhat husky and cracked in tone. Feeling sure that something was wrong I watched intently, but for a time without seeing anything. Finally the mother crossed a space of open water, unattended by any of her young. A moment later a large brown Hawk swept down on set wings almost to the level of the water, and disappeared behind the trunk of a tree, apparently stooping at some prey among the drift-wood and alighting there. When it first came in sight, the mother Whistler redoubled her outcry, and actually flew to meet it, passing with it out of my view behind the tree, where I could hear her thrashing the water with her wings and shrieking louder than ever. Half a minute later she came flying towards the boat, and dropped into the water just outside the trees. Between their stems I now saw several of the ducklings swimming among the drift-wood with flattened heads and bodies, occasionally diving. One after another came in view, until I had counted the total number, eleven, much to my relief. For several minutes they continued skulking and hiding, and the mother kept up the shrieking cry, which was evidently a note of warning to the young. At length the bird of prey rose from behind the trunk where I had lost sight of it and flew off over the trees. As it did so, I saw that it was a female Broad-winged Hawk, no doubt one of a pair which have been frequenting our cove of late. I believe that the Whistler's alarm at its appearance was wholly uncalled for, and that it merely stooped at some sluggish spawning toad, which it probably killed and ate among the drift-wood behind the big tree trunk, for it had nothing in its talons when it flew away, and I do not think it would have stayed there so long (upwards of five minutes), had it caught nothing. At all events it did not get one of the ducklings for, as I have said, their numbers remained intact. Soon after it had disappeared the brood reassembled and, with their mother, spent nearly half-an-hour within less than twenty yards of the house-boat. The young now spread out over a space covered with floating grass torn up by the Muskrats, and paddled back and forth through it very rapidly, carrying their heads low and apparently dabbling among the grass with their bills, as if seeking food in it, after the manner of surface-feeding ducks. This I had not seen them do before. Another thing that interested me was that when a Muskrat swam past the brood within a few yards neither the young nor their mother took any apparent notice of it. About five o'clock the whole family went out through the open channel again and that was the last I saw of them on this occasion.

Very many young Whistlers, more or less well grown and feathered but mostly with unfledged wings, frequented the muddy shallows in and about the mouth of Cambridge River during the whole of August, 1896, when I had several opportunities of watching them closely. There were then no motor-boats to disturb them, and the Pickerel — fishermen who came and went in row-boats and canoes did not molest them. Being thus permitted for a time to pursue their daily avocations in peace and safety they became comparatively tame, and were

constantly to be seen scattered about everywhere, singly or in couples, each bird keeping rather strictly to its own chosen hunting-grounds. By day they ventured close to shore in reedy coves and up the narrow River, but at night-fall every one paddled out two or three hundred yards into the Lake and remained there until the following morning. The only note I heard them utter was a low *queer* having a peculiarly shrill, yet husky treble quality not unlike that of the wheezy call of a male Black Duck. Most of them were evidently getting their living by diving, which they kept up almost ceaselessly from sunrise to sunset, but I saw one on the 12th of the month swimming very rapidly to and fro in zig-zag lines, with outstretched head and neck and half-opened bill, apparently skimming food from the surface of the water much after the manner of a Phalarope. During the entire time that I had it under observation it did not ever dive nor go far from the spot where it was first noticed. By the very end of August, nearly all these young Whistlers had perfected their plumage and were able to fly well. Most of them, I regret to say, were killed or driven out of the Lake by gunners a few days after the shooting began on September 1. I shot one on the 5th which, although fully grown, was incapable of flight because of insufficient development of its wing-quills. It was in a shallow cove near the outlet. When it tried to elude me by diving, its course and progress under water were very accurately indicated by the leaping of scores of young Pickerel that it disturbed. This was not the first time they had been of similar service to me in Lake Umbagog, by enabling me to follow the movements of diving birds under water.

Bucephala albeola (Linné).

BUFFLE-HEAD. BUTTER-BALL.

Transient visitor, rare in spring, not uncommon in autumn.
Early May–June; October 4–27.

Early in May, 1880, a Buffle-head was shot in Lake Umbagog and sent to Mrs. Charles Bartlett of Poplar Tavern, Newry, who skinned and mounted it. She showed it to me on the 15th of the month with pardonable pride, for it was a male in full-nuptial livery, and a handsome specimen. On the morning of June 1, following, I was going down Cambridge River from the Lake House in the side-wheel steamer DIAMOND when, as she thrashed her way noisily around the bend opposite Peaslee's Spring, an adult male Buffle-head, startled by her

approach, flew out from among some stubs on the left bank. Later in the forenoon another (it could not well have been the same) was similarly disturbed and viewed as we were steaming up the Magalloway River, a few miles above where it unites with the Androscoggin. On our return trip in the afternoon, we came upon a female Buffle-head in Cambridge River very near where the male had been flushed in the early morning. She was feeding among half-submerged grass at the water's edge, and allowed us to get within close shot-gun range before taking flight. William Peaslee, Captain of the steamer, assured me that he had repeatedly seen both birds together there during the previous week or so. This indicated, of course, that they might have a nest in one of the neighboring hollow stubs, but our search for it on the following day was wholly without success. I am still inclined to believe that they must have bred somewhere near the mouth of the Cambridge, and that the other drake may also have had a mate and nest, perhaps in the bottom lands of the lower Magalloway. No one of the three was met with again that season, however, nor have I since noted any others in spring or summer.

My autumnal records are rather numerous, for the birds used to appear very regularly — if only sparingly and infrequently — in October, usually in the Lake itself or in the lower reaches of its tributary rivers, the Cambridge and the Magalloway, but sometimes in lesser and more secluded bodies of water, such as B and Errol Hill Ponds. During this month they were oftenest met with singly or in couples, and I fail to recall ever seeing more than four or five together, or a greater number than ten or a dozen, in the course of any one season. Perhaps the bulk of the south-bound flight did not reach the Lake until after my departure, which happened usually before the last of October, and never later than November 2. Such, at least, was the opinion of several local guides and hunters. One of these, Daniel Heyward, who then lived by the shores of the Lake, and keenly watched the wild-fowl that haunted it, claimed to have found upwards of forty Butter-balls late in the autumn of 1884, in a wide space of open water at the Narrows, the Lake being elsewhere skimmed over with thin new ice at the time. They were, he said, not together in one flock, but scattered about by twos and threes, diving. There were many fine old drakes among them.

Some of my personal experiences with Buffle-heads at the Lake are described nearly as follows in the journal or note-books:—

1883, October 22.— Found two birds swimming in the Lake off Great Island in company with eight Scaup Ducks. The latter permitted a close

approach, but the Buffle-heads rose on wing and left them before we got within one hundred yards of the flock.

1885, October 26.— Seeing five Buffle-heads diving close in shore at Moose Point I tried to "paddle on to" them, but failed, although my boat was thoroughly screened with grass. They would fly when I was still at least two gunshots away, and after going only two or three hundred yards would alight and begin diving again, disappearing like a flash, but not remaining under long. Their wings in flight had a peculiar look unlike that of other Ducks and more suggestive, I thought, both in respect to shape and movement, of those of the Woodcock.

1889, October 22.— Early this morning two Buffle-heads appeared in a little cove near our camp and just to the southward of Moll's Rock. One was an adult male in full plumage; the other a young male in a dress closely resembling that of the female. I watched them through my field-glasses for upwards of an hour, during which they remained, without shifting their position more than a few yards, close to the opposite shore of the cove, which was bold and rocky, diving incessantly in water at least eight or ten feet in depth, sometimes alternately, but usually both together, or one immediately after the other. Their manner of diving was similar to that of the Golden-eye, and less finished and graceful than that of Mergansers or Grebes. On returning to the surface, they bobbed up like rising corks a little above it before settling down to their normal water lines, being apparently projected upward with some force by the natural buoyancy of their bodies, although this may have been assisted by action of the wings, which I failed to note. The drake presented a beautiful appearance in the water, looking almost snow-white, and carrying his crest erect most of the time, his head showing, otherwise, very large and fluffy. Deciding, finally, that these birds were not likely to come over to my side of the cove I crossed its mouth in a boat, within one hundred yards of them. They gazed at me intently as long as I was in sight without, however, displaying much alarm. Landing just beyond it, I stalked and shot them both, approaching them partly under cover of the woods, and partly by making a succession of runs over some open ground when they were under water, crouching flat whenever they reappeared at the surface. As they had been diving so long and persistently in one spot, I supposed, of course, that it must have yielded an abundant supply of food, but no trace of this could be found in their throats or gullets, while their stomachs contained absolutely nothing but a small quantity of gravel. I skinned them both and have the specimens still.

1890, October 25.— Visiting Errol Hill Pond late this afternoon I found it swarming with wild-fowl. There were Black Ducks, Golden-eyes, Goosanders, and three female or young Buffle-heads. The birds last named were diving ceaselessly for food, sometimes close to shore, sometimes well out from it in rather deep water. Springing, with lowered heads and strongly arched backs, nearly clear of the water, they cleft its surface almost — but never quite — as smoothly and deftly as the Goosanders. When beneath it they

kept sending up shining air-bubbles — noticeable at considerable distances. On reappearing they bobbed high up for an instant like so many big, buoyant corks. Two regularly fished together, diving and coming up about the same time. The third, keeping apart from them, finally rose on wing and then realighted near my place of concealment, striking the water obliquely and with such unchecked impetus as to shoot over the calm surface for a distance of several yards, making a slight rustling sound, as well as a long and deep furrow. No one of the three uttered any vocal note that reached my ears.

October 26.— There were four Buffle-heads in Errol Hill Pond this morning, all wearing a plumage resembling that of the female. I watched them for fully three hours, during which they fished almost unceasingly. Although remarkably industrious and energetic in pursuing this occupation, they appeared less restless than are most water-fowl when similarly employed, confining their operations to more narrowly limited areas and often spending half-an-hour in practically the same spot. By shooting and dissecting two of them I ascertained that they were feeding on the larvae of aquatic insects, chiefly water-boatmen (Notonecta) and lucky-bugs (Gyrinus) — with which this Pond literally swarms. On coming up from a dive each bird usually raised its head high and looked keenly around for an instant, but this precaution was sometimes omitted. They paid little or no heed to sounds of any kind and I found it easy to approach them closely under cover of the dense woods, although it was impossible to move through these without making a lot of noise, the ground being littered with dry leaves and dead twigs and the day perfectly calm. Even when I fired at some Black Ducks the crashing report of the gun, echoing and reechoing all about the crater-like pond, merely caused the Buffle-heads to fly to its further end, whence they soon returned to begin feeding again in the original place.

Elsewhere in the journal occur other and briefer entries which testify to the effect that Buffle-heads were accustomed, during their annual visits to the Lake, to linger for days in succession in the same coves or ponds, unless disturbed; that at times their flight "was exceedingly swift and erratic," at others more direct and not unlike that of the Golden-eye; that when on wing they sometimes looked so very small and made such sudden and sharp turns that one might easily mistake them in dim lights for Snipe or Golden Plover; but that when seen in clear light and recognized as Ducks, they might be distinguished from all others of the tribe by the peculiarities of flight just mentioned, and also by their characteristic colour and markings, the white spots on the sides of the heads of the females and young being usually shown rather conspicuously, while the full-plumaged drakes were, of course, very unlike those of any other species.

Clangula hyemalis (Linné).

Old Squaw.

Transient visitor, rare in spring, not uncommon in autumn.
Early May; October 17–22.

The Old Squaw is well known under that name to many of the local guides and hunters at Umbagog. Others, less familiar with it, confuse it with Scoters of three different kinds, calling all four species "Sea Ducks." It used to visit the Lake almost, if not quite, every autumn — and doubtless does so still — appearing soon after the middle of October, usually in the South Arm between Lakeside and Great Island, or in the still longer and wider expanse that stretches from Metalluc Island to the outlet. Arriving from the far north before sunrise, if not before daybreak, in flocks containing anywhere from three or four to fifteen or twenty members each, the tired birds would alight well out from shore, in perfectly open and rather deep water where, if undisturbed, they were likely to spend the entire day, sleeping most of the time with their heads buried in their scapular feathers; occasionally dressing their plumage or swimming restlessly to and fro; never diving except when shot at or pursued by a boat. Apparently the Lake failed to supply them with acceptable food of any kind, and served merely as a temporary resting place — from which they invariably departed during the night immediately following that of their arrival, either continuing their journey southward, or heading southeastward for the nearest part of the Maine coast — I know not which.

It must not be inferred from anything that has been said that Old Squaws were ever met with frequently in the Lake, even at the height of the autumnal migration. On the contrary, it was unusual to note them more than once or twice in the course of a single season. Many, however, may have come and gone without attracting our notice, for we could not always keep close watch of the Lake, nor often traverse it from end to end in any one day. We shot them whenever opportunity offered, skinning some for specimens and cooking others for food — their flesh being by no means unpalatable, although inferior in quality to that of most other Ducks. Sometimes they were absolutely tame, not only before, but also just after being shot at, and even when, as was commonly the case, the flock included one or more adult males — always in full-winter plumage. A remarkable instance of this is furnished by an experience which I had on October 27, 1883,

when Luman Sargent paddled me, in a boat draped with rushes, to within thirty yards of four handsome old drakes, accompanied by a single female, and swimming in deep water off Great Island. Three of them fell, almost together, at the double discharge of my gun. The other two birds flew about over the Lake for awhile, the male uttering his familiar call, *haw, haw, ĕr-lît*. After they had settled, we again got very near them and I killed the female. Shortly after this, the sole surviving member of the flock, failing, it would seem, to have profited in the least by the lesson that his previous hair-breadth escapes should have taught him, was once more closely approached, and this time bagged. Two of the other birds that had fallen wounded into the water attempted to elude us by diving, but were easily followed and secured, for they exposed their bodies fully whenever they returned to the surface.

Two later experiences, differing decidedly from that just described, and also unlike each other in some respects, are referred to nearly as follows in my note-books:—

1885, October 23.— Nine Old Squaws on the calm surface of the Lake off Moll's Rock attracted my attention at a distance of fully a mile, when they turned their breasts towards us, looming large and appearing snowy white. They looked dark brown, and became well-nigh invisible at a much less distance whenever they faced away from us. As we approached them cautiously, hoping to obtain a shot, they began to swim rapidly to and fro — quite as often in our direction as in any other — now huddling close together, next strung out in a long line, acting as if bewildered and uncertain what to do — at times as if they had almost lost their wits. This singular behaviour was kept up until we got within one hundred yards, when they rose on wing and flew straight away up the Lake beyond our range of vision. Seven of them were apparently adult males.

1889, October 19.— A small flock of Old Squaws, made up of four or five old drakes and two females or young males, appeared in the Lake off B Brook Cove early this morning. We pursued them in a boat for hours without getting a shot. Although excessively wary, never permitting us to approach them nearer than two hundred yards, they could not be driven from this particular expanse of water. Once they joined a flock of about twenty American Scoters, remaining with them for some time.

The only record known to me of the occurrence of the Old Squaw at Lake Umbagog in spring relates to a male in *full-nuptial plumage* which Mrs. Charles Bartlett received in the flesh, some time in May, 1887, from Daniel Heyward and mounted very creditably. After seeing it in her possession I questioned him about it. He said he had found it swimming in the Lake, accompanied by a similarly dark-

coloured male, and by what appeared to be a female of the same species. All three birds were exceedingly shy, and he was able to shoot only the one that I saw.

Oidemia nigra americana Swainson.

American Scoter. Butter-billed Coot. Butter-bill. Sleigh-bell Duck. Sea Duck.

Transient visitor in autumn; occurring very numerously, often in large flocks.

Although Lake Umbagog lies comparatively remote from the sea-coast among towering, forest-clad mountains it is visited every autumn by considerable numbers of Scoters, which represent all three of the species found elsewhere in New England. They are usually called "Sea Ducks" by local hunters and "Coots" by sportsmen who live on or near salt water. Gunners of both classes distinguish them specifically, with more or less accuracy, calling the American Scoters "Butter-bills," the Surf Scoters "Skunk-heads" or "Gray Coots," and the White-winged Scoters "White-winged Coots" or "White-wings." Coming from the far north in flocks which may contain anywhere from three or four to upwards of a hundred members each, they arrive in the morning and depart the following evening, for although they may be seen for days in succession, the *same* birds, rarely if ever, spend more than a single autumnal day of any one season in the Lake, unless forced to do so by disabling wounds. The autumnal flight always begins in September — occasionally as early as the 4th or 5th — but does not reach its height before the middle, or perhaps the last, of October, when the Lake usually abounds, and sometimes literally swarms, with Scoters. Just as I was about to leave it for Bethel on the morning of October 30, 1889, at least *one thousand* were in sight at once from the piazza of the hotel at Lakeside. They are said to occur still more abundantly just before it freezes over in November, but as to that I am unable to testify from personal observation. During average seasons one is likely to see — especially after the 10th of October — at least ten American Scoters for every Surf Scoter, and perhaps two Surf Scoters for every White-winged Scoter. The species last named apparently confines its visits to Umbagog and other similarly broad lakes of the Rangeley Chain, where it rarely ventures near shore, or associates with water-fowl of any other kind. American and Surf Scoters intermingle freely with one another and

alight not only in the big lakes, but also in ponds only one or two hundred acres in extent and, occasionally, even in narrow rivers and small flooded meadows, walled in on every side by dense forest. It is further noticeable that the American Scoter commonly appears in larger flocks than either of the other two, and that it is usually more alert and wary than the Surf Scoter, but less so than the White-wing. Save in respect to these trifling differences, all three species have essentially the same habits and places of resort.

I used to hunt Scoters eagerly and persistently at Lake Umbagog, neglecting no favorable opportunity for doing so and wasting none of the very many birds I killed. They furnished most exhilarating sport, and when properly cooked were quite as good for food as any of the water-fowl that frequented the region excepting, perhaps, the Blue-winged Teal. As they haunted the broader reaches of the Lake and rarely came within gunshot of its shores, I was accustomed to pursue them in a light boat or canoe, crouching at its bows — perhaps behind a hastily constructed screen of grass or leafy branches — while my guide lay on his back in the stern, wielding a paddle vigorously, yet noiselessly. Much depended on his skill in the use of it, still more, perhaps, on his quickness of perception and good judgement. For he could not always keep the birds in sight, and the signals I made to inform him of their position or movements were sometimes unintelligible, so that in dealing with changes in conditions that were constantly taking place, he had to rely more or less largely on intuition. If everything happened to go well during an approach made in this way to a large flock of Scoters, it was sure to be fraught with interest and excitement, especially when we were getting almost, but not quite, within possible gun-range. Often they would rise on wing at just that critical moment, but not infrequently it passed without their taking serious alarm, and we got a long shot or perhaps an embarrassingly close one; for occasionally they took little or no notice of us until we were very near, and then a score or more might swim straight for the slowly-moving, grass- or leaf-enshrouded boat, probably mistaking it for a floating island, and perhaps coming unnoticed almost under the bows, while our attention was directed to others farther off. If, as commonly happened on such occasions, they saw through our disguise an instant later and rose on every side in great confusion, it was difficult to get more than one with each barrel; but sometimes the guide was quick-witted and skilful enough to quietly withdraw the boat from among them, when I have known them to follow it for several rods. If we failed to get within range of them when they

were in the water, there was always a chance that they would pass near us on wing, especially when we drifted towards them before a fresh breeze, for they invariably rose against the wind and did not always sheer off to avoid the boat. During very windy weather, however, they were shyer and more restless than at other times, and when big white-capped waves were rolling in endless procession across the open Lake, it was difficult to handle a light canoe there, and we commonly stayed on shore.

It must be confessed that Scoters often proved too rank and unsavory to be very acceptable additions to our camp larder, during the years when we knew no better than to broil, fry, stew, or boil them. At that time, indeed, my guides and the native hunters who occasionally joined us at table, refused to eat them, and made much fun of me for persisting in doing so. But no one had to be pressed to partake of them a second time, after we had learned to cook them, as we baked our beans, in a hole dug in the ground and liberally banked above, below, and on every side, with red-hot hardwood coals. Before being consigned to this backwoods oven, the bird was stuffed with sage, onions, and bread crumbs, and wrapped in several thicknesses of stout brown paper or birch bark, smeared with butter or lard. It was kept among the coals, with a freshly-kindled fire burning above them, for just an hour and a quarter. When taken out and unwrapped, it looked more like a boiled than a roasted Duck, for the skin remained smooth and moist. Scoters cooked in this fashion were invariably tender, juicy, and deliciously flavored, even when old or excessively fat. Some of us preferred them to Black Ducks or even Wood Ducks, and everyone feasted on them thankfully enough, whenever they could be obtained.

Thanks to our custom of early rising when encamped on the shores of Lake Umbagog, we had not infrequent opportunities of witnessing the actual arrival of migrating Scoters in autumn — a most interesting spectacle. Coming invariably from the northward or northwestward, sometimes at daybreak, oftenest about sunrise or a little later, occasionally not until eight or nine o'clock — they would appear over the Lake at an elevation apparently equalling that of the surrounding mountain crests, and so great that they looked no bigger than swallows. If American Scoters, and numerously represented, they were sure to make, at this time, a continuous, musical clamor, silvery in tone and suggesting that of multitudinous, distant sleigh-bells. Because of it they are called "Sleigh-bell Ducks" by native hunters and farmers, who assert that it is made by the birds' wings. I used to entertain this opinion and have not yet wholly discarded it; but after having

repeatedly heard something very like this tinkling chorus proceeding from a score or more of Butter-bills swimming in the Lake and uttering their *cree-cree* notes in rapid succession, I am now inclined to believe that when coming down out of the sky, it is also of vocal origin and merely a prolonged outburst of these same wild, ringing *cree* calls, blending together, and pleasingly softened by distance.

After circling or doubling for two or three minutes without perceptibly lowering their flight, the birds were accustomed to descend neither spirally nor on long inclines, but *almost vertically*, and with such velocity that the eye could scarce follow them, making a rushing sound *not* unlike that of strong wind blowing through pine tops, but perhaps still more like that of escaping steam. It could be heard distinctly more than a mile away, and I was sometimes awakened by it at daybreak, when sleeping in a tent by the Lake shore. Probably it is produced by the friction of the air on the contour plumage of the Scoters' bodies, for they seemed to keep their wings tightly closed until they were within one hundred feet or less of the water when, by reopening them, they checked — with amazing abruptness and indeed almost instantly — the frightful impetus resulting from the downward plunge and resumed level flight. This might continue for miles, as the birds coursed back and forth low over the Lake, before alighting; or they might settle almost immediately, after wheeling a few times. The more restless or suspicious ones often remained in the water only a few minutes before taking wing again, apparently for the purpose of more thoroughly exploring the Lake. Nor did they always seem content with what they could see of it by once or twice flying the whole length of it and into all its larger coves; for such excursions might be repeated at frequent intervals during an entire day, although at the end of each, the birds were almost certain to return to the spot where they had first alighted and to rest there awhile, unless disturbed by gunners. These reconnoitring flights commonly began on a level plane not more than forty or fifty feet above the water, and perhaps were performed throughout at no greater elevation. Sometimes, however, a flock would continue to mount higher and higher, until it had reached an altitude similar to that at which it had first appeared in the early morning. Then, as if about to leave the region altogether, and with an exultant outburst of sleigh-bell music to celebrate what seemed to be their final departure, the birds might fly straight off towards the south or southeast, until lost to sight in the distance. But they were sure to reappear within the next fifteen or twenty minutes and to pitch down headlong into the Lake in their character-

istic fashion, perhaps alighting at almost precisely the original resting place. Such false starts were undertaken oftenest when the weather was cold and windy, or when the Scoters had been shot at repeatedly. The real southward flightings, similar in most respects to those just described, were always made at evening, sometimes not long after sunset, but usually when it was almost, if not quite, too dark to see the birds plainly, even against the sky.

While manoeuvring high in air above the Lake, in the manner just described, American Scoters were given to changing their flock-formation every few minutes. Sometimes they flew in V- or harrow-shaped array like Geese; sometimes strung out — perhaps to the number of one hundred or more — in a long line extending now with, next directly across, that of their course; occasionally in a dense, formless cluster like Teal or Sandpipers. If the order of flight were changed suddenly, or if the birds wheeled abruptly to pursue a new direction, they were likely to be thrown into temporary confusion, and perhaps to crowd together so closely that we might hear their overlapping wings strike one another repeatedly, producing a sound not unlike that resulting from the fall of a paddle, flat side down, on smooth water, and audible fully a mile away when the air was calm. Loud shouting or the discharge of a gun would sometimes cause all the members of a flock passing high overhead to descend at once to within a few feet of the water, each bird dropping as directly and promptly as if it had received a disabling wound. Taking advantage of this habit — familiarly known, of course, to most sea-coast gunners — we occasionally killed Scoters as they were skimming low over the Lake, just after hurtling down from the sky; but much oftener than not they either pitched beyond gun-range or else kept steadily on their way, ignoring the noises made to bring them down. Why these should ever have such an effect is difficult to understand. It may be that as the birds are accustomed to spend most of their time in the water and to plunge beneath its surface when wounded, they are inclined to return to it instinctively and precipitately, as to a haven of refuge, whenever panic-stricken in the upper air, where they comparatively seldom go and probably never feel secure. Such a suggestion is not necessarily discredited by the fact that the birds rarely, if ever, alight immediately after descending, for once within easy reach of their favorite element, they may well become sufficiently reassured to fly about low over it awhile, as is their usual custom before settling anywhere.

It was by no means unusual to note upwards of one hundred American Scoters in a single flock, and occasionally as many as five or six

hundred might appear together. The glossy black old males were most numerously represented early in the season, the brown females and young after it was well advanced. In the autumn of 1889, the first flock seen (on September 21) contained three black and four brown birds, and the second (on October 3) fully ninety black to ten brown ones, whereas the third (on October 10) had only seven or eight black males to some sixty-five or seventy brown birds, and the fourth, fifth, and sixth (occurring respectively on the 12th, 16th, and 19th of the month) were made up wholly of females and young.

Early in the morning of September 30, 1888,— a gloomy day chilled by occasional snow-squalls — we saw two flocks of "Sea Ducks" drop from the lowering sky and alight in the Lake off B Brook Cove. After breakfasting, and brushing our boat, Luman Sargent and I went in pursuit of them, getting within forty yards of the larger flock, which proved to be composed entirely of American Scoters, not less than one hundred in number, and *every bird* an adult male in full-black plumage. As we approached, they did not seem to notice us, but continued to swim slowly across our bows in broad column formation, five or six abreast and almost touching one another, the yellow of their bills showing conspicuously. Into the middle of the sable-hued flock I fired one barrel (loaded with no. 4 shot) of a 12 gauge gun weighing seven and one half pounds, discharging the other (loaded with B.B.) a second or two later, after the birds had risen on wing. When the smoke cleared away we saw that the surface of the water was literally strewn with dead and disabled birds. Seven of these were picked up lifeless on the spot, and as many more wounded ones were secured with more or less subsequent trouble. Thus we bagged no less than *fourteen* in all. It is, I believe, very unusual for so many large and densely-feathered water-fowl to be brought down by the double discharge of so light a gun.

On the morning of October 3 of the following year (1889), we found an equally large flock in the same part of the Lake. It was composed almost entirely of adult male American Scoters, there being about ninety of these, with a few females or young of the same species and one or two Surf Scoters. As we drew near the birds, they presented a most attractive appearance, especially when the shining black mass they formed became thickly spangled with spots of gold, as they turned their heads so as to expose their "butter" bills to the sunlight. For minutes at a time they drifted in a compact line which looked, at a distance, exactly like a big, fire-blackened log. Then they would suddenly become active and playful or very restless. Every now and

then they indulged in what seemed to be a sort of revolving dance, all the members of the flock following one another closely, as they swam rapidly around and around in a great circle, each bird using its broad-webbed feet so energetically as to keep most of its body above the surface, although its wings were never opened. During this performance we heard a continuous plashing sound, very like that of heavy rain drops falling on a calm pond, and doubtless produced by the vigorous action of the birds' feet. When not otherwise engaged, one or two members of the flock were likely to be going through a motion which seems to be peculiar to Scoters, if not to the single species *O. americana*. First the bird raises the forward half or two thirds of its body out of the water — evidently by means of its feet alone, for the wings are not unfolded — at the same time stretching up its neck to the full length. For a fraction of a second it remains thus posed, looking like a bottle floating upright. Then it shortens its neck and sinks back into the water. Less often a Scoter will rise on end in the water to flap its wings a few times, after the manner of most waterfowl.

When American Scoters are reposing on the surface of the Lake, even in large flocks which include many old birds, they do not often seem to notice a boat wholly exposed to their view until it is almost or quite within one hundred yards, when they begin to swim away from it almost as fast as it can be paddled, furrowing the water deeply and piling it up in front of their broad chests, constantly turning their heads from side to side to look back over their shoulders. All the while they are likely to spread out widely, and perhaps in a long line extending at right angles with their course. If the boat is coming down before the wind — as it should — they often try to avoid it by swimming rapidly off to one or the other side of it so as to get a chance to rise to windward — as they must — without having to pass it closely. When they are about to leave the water several birds, if not all the members of the flock, stop swimming, and stretch up their necks for an instant just before unfolding their wings. On starting, they progress for the first two or three yards by the use of their legs as well as wings, striking the water with their broad-webbed feet as if running on its surface, thereby making a loud pattering sound — as of falling hailstones. If the boat which has disturbed them be wholly undisguised, they are likely to rise when it is seventy or eighty yards away, and almost certain to do so before it is within sixty yards. But if it be well screened about the bows with grass or leafy branches, and carefully handled it may be paddled much nearer than this without

alarming them. They are, however, so freaky and erratic that one can never foretell with any confidence what they will or will not do. This is especially the case during stormy or very windy weather when they are much given to restlessness and to sudden panics, having, perhaps, no obvious cause, and sometimes quickly succeeded by equally unaccountable lapses from normal wariness. Thus after rising twice or thrice far in advance of the approaching gunner, yet perhaps not so far that all escape injury from his shots, they may let him get within thirty yards or less at his third or fourth attempt. Hence it is always worth one's while to follow them up persistently at the Lake, however unapproachable they may seem at first.

American Scoters swimming in the Lake, and however numerously assembled there, preserve, for the most part, a discreet silence, except when about to take flight or when performing their curious revolving dances on the surface of the water; then one may hear their shrill *cree-cree* calls, given simultaneously, or in quick succession, by a dozen or more birds, whose clear, high-pitched voices unite to form a ringing chorus worth going far to listen to, because of its wild and thrilling quality, and audible half a mile away if the day be calm. From nearer at hand may also be heard on such occasions a medley of low, raucous, croaking sounds similar to those made by Wood Frogs in early spring and representing, it would seem, a sort of conversational chatter in which birds of both sexes and various ages take part. The *cree* note, as far as I have been able to ascertain, is peculiar to the old males, who occasionally utter it when wounded, just after coming up from a dive. If, as often happens, there are a few Surf Scoters intermingled with the Butter-bills, their hoarse, quacking cries are likely to add to the general din. This commonly reaches its climax, and sometimes becomes well-nigh an uproar, just as the dusky hordes rise on wing before an advancing boat. After they are clear of the water and get fairly under way, the clamor usually ceases altogether, perhaps rather abruptly. It may be resumed a little later if the birds mount skyward to wheel and circle high above the Lake. Then, of course, one hears only the *cree* notes which, softened by distance and blending in sweet, rather plaintive cadences, fall very pleasingly on appreciative human ears.

Although large flocks of American Scoters often course low over almost every nook and corner of Lake Umbagog during reconnoitring flights, they seldom alight elsewhere than in the South Arm — especially off the southern end of Great Island — or in the still wider reach that extends from the Narrows to Pine Point — where they are most

likely to settle off the mouth of B Brook Cove, or not far from the outlet. Small flocks and solitary individuals are also much addicted to haunting these broad reaches of open and comparatively deep water, but are less strictly confined to them being, indeed, met with not infrequently in various other parts of the Lake, and occasionally in rather narrow coves and channels. Wing-broken birds that have escaped the gunners often approach very close to land, diving for food in shallow water, or seeking it by swimming along grassy or muddy shores, but apparently obtaining little if any of it; for whenever I have captured and examined any thus engaged, they have invariably proved to be pathetically emaciated, with nothing in their stomachs save a little sand or gravel. Hence it is probable that they commonly starve to death before their wounds can heal. Equally without traces of animal or vegetable food have been the stomachs of all the very many sound and vigorous birds that I have shot and dissected. Nor have I ever known such birds resort to diving unless obviously in play or to elude a pursuing boat — and then but rarely. These facts would seem to show rather conclusively that the Lake fails to furnish much, if any, sustenance to the Scoters which visit it so numerously. They do, however, sip its waters eagerly just after first alighting, but this, no doubt, is merely to slake their thirst.

If, at Lake Umbagog, Scoters ever set foot on shore — or clamber out on isolated water-washed rocks and lumps of mud to bask in the sun, as most wild-fowl are so fond of doing — or seek shelter from human observation, or from wind, in beds of aquatic vegetation — it can happen but rarely, for no such thing has ever come under my notice. Nor have I often seen them go completely under water except in play or when wounded. Immediately after receiving disabling, yet not otherwise serious, wounds, they invariably resort to diving, and keep it up vigorously and persistently, until overtaken and captured, or until they consider themselves safe from further pursuit. In order to secure them it is necessary, of course, to shoot them over again. This may require the expenditure of much ammunition, for they are exceedingly tenacious of life, and a Scoter's head is easily missed, especially if the gunner must fire from a frail canoe tossing on troubled waters. Under ordinary conditions it is not difficult to follow the birds closely, for they do not often remain down long nor take other than a straight course. This can be traced very accurately and readily when the weather is calm, by noting the rising air-bubbles which come from their lungs or, perhaps, plumage. On returning to the surface they commonly expose the whole head and not infre-

quently most of the neck, with perhaps a portion of the back, also. Sometimes attention will be drawn to birds that have risen in unexpected places by the rather loud, gasping sounds that they make as they take in breath after a protracted dive. I have known young birds, very badly frightened, so lose their presence of mind as to plunge and reappear several times in almost exactly the same spot, evidently going straight down to an unusual depth, and seeming not to heed the near approach of our boat. Once when this happened I almost laid hands on the obviously bewildered creature as it came up within a yard of me. It recovered its wits the next instant, however, and began a series of normally executed dives, leading us a chase of a mile or more before it was finally killed.

When the Lake is swept by violent winds, Scoters are not easily kept in view and many wounded ones elude pursuit. Even if unhurt and swimming buoyantly in good-sized flocks, they may, at such times, be passed unnoticed by keen-eyed sportsmen. For their dusky colouring matches well with that of the innumerable dark hollows between the racing waves, and it is only when they appear for an instant on the crest of a big swell that they are likely to attract attention. I have been interested to observe that among white-capped waves an adult male Surf Scoter is particularly hard to see, because of the equally snow-white patches on its head, although these make it very conspicuous when it is seen in calm water. All this might be taken as confirmatory of some of Abbott Thayer's beliefs. Perhaps he would further contend that the brilliantly painted bill of the Surf Scoter and the rich yellow on the culmen of the American Scoter also serve, under certain conditions, to help conceal the birds. Such, however, has never been my experience.

Scoters, as has been said, are notoriously tenacious of life. Not only do they continue to dive long after receiving wounds which instantly and completely disable most other water-fowl, but even when taken apparently lifeless into a boat, and perhaps after remaining so for a considerable length of time, they will sometimes become suddenly active and resourceful again when unobserved. This has sometimes inclined me to suspect that, like the marsupial creature whose name is commonly associated with such subterfuges, they may deliberately feign death in the hope of thereby escaping it. Once at the Lake an American Scoter, after behaving in the manner just described, actually jumped overboard and was never seen again — according to the statement of a gunner in whose veracity I put full faith. Still more surprising was an experience that befell a friend of my youth, many years

ago, in Quincy Bay, Massachusetts, after he had shot and, as he supposed, killed an adult Surf Scoter. On picking it up he found that it was an uncommonly handsome specimen and being desirous of preserving its skin he plugged its throat tightly with a big wad of cotton wool to prevent a possible outflow of blood — as is the usual custom of collectors. It was then laid in the sun to dry on the deck of his boat — a small "gunning float." There it remained perfectly motionless until he sculled towards, and fired at, another Scoter, when, to his infinite astonishment and chagrin, the bird with the cotton in its throat rose at once to its feet and plunged headlong into the waters of the Bay, to be seen by him no more. It may be, of course, that in both these instances, as well as in others, similar but less remarkable, that have come under my personal observation, the Scoters did not really "play possum" but were merely stunned for a time by the shot. Indeed, this without doubt is the most reasonable way of accounting for their behaviour.

It is probable that American Scoters, migrating southward in autumn, sometimes fly over Lake Umbagog without stopping. If so they must pass chiefly, if not solely, by night. For all those appearing in the daytime that I have watched closely have alighted somewhere in the Lake and remained in or comparatively near it until the following morning, when they were sure to depart, unless detained by disabling wounds. So fixed and unswerving has been their custom in these respects that I have never once seen a bird take its final departure in broad daylight, nor known an uninjured one to go before the next morning, the usual time of leaving being about half an hour after sunset. It would seem, therefore, that Scoters must be averse to performing long overland journeys by day, and that they rarely, if ever, start on them except at night. Apparently they cannot always complete them during the hours of darkness, for although they commonly arrive at Lake Umbagog before sunrise, some of the flocks do not appear until nine or ten o'clock in the forenoon. I have never known them to come later in the day than that, even during rainy weather, when Wilson's Snipe and other birds which ordinarily migrate only by night may be seen flighting southward at almost any hour.

Whence come these regularly recurring and sometimes really heavy autumnal flights of Scoters? I believe that very many water-fowl and waders which breed far to the northward and appear about Lake Umbagog in autumn, migrate from Hudson Bay along a direct and much frequented avian pathway that leads southeastward across country, past our Lake to Casco Bay on the Maine coast. The dis-

tance between these Bays in an air-line is less than seven hundred miles, whereas a bird must fly more than thrice that far to go from Bay to Bay by way of Davis Strait and around the coast of Labrador. The shorter overland route traverses a country which is mainly wilderness, abounding in lakes and rivers, where swimming and wading birds can alight to rest, if not also to feed, whenever they so desire. Of all those which may take this course none, it would seem, are more likely to do so commonly and numerously than Scoters. For they are said to swarm in Hudson Bay just before seeking winter quarters further southward, and it must be from some such source of abundant boreal supply that the large flocks occurring at Lake Umbagog are derived. A few birds (especially White-winged Scoters) may, however, reach this Lake from Alberta and other interior parts of British America, by way of the Great Lakes and the St. Lawrence River.

Oidemia grisea deglandi Bonaparte.

White-winged Scoter. White-winged Coot.

Transient visitor in spring and autumn; appearing regularly and not uncommonly, if somewhat sparingly.

May 23–June 7; September 24–October 21.

White-winged Scoters migrating northward used to visit Lake Umbagog not infrequently in spring, usually during the last week of May and singly, or by twos and threes. The greatest number we ever saw together at that season was seven — all adult males swimming in the Lake near the Narrows on May 30, 1897. Eight days later (on June 7) a precisely similar flock, perhaps consisting of the very same birds, was met with in the neighbourhood of the outlet. In autumn the return flight from the north occasionally began early in September, but was seldom fairly under way before the close of the month, nor ever at its height until the second or third week of October, when the birds appeared regularly and sometimes commonly, but not very numerously. At least I cannot recall ever seeing more than twenty-five or thirty in one flock or more than fifty in the course of a single day, while the total number noted during an entire autumn might not exceed a dozen or fifteen. The adult males came both early and late, sometimes in bachelor parties, rather oftener with their females and young. My notes mention flocks composed wholly of velvety black drakes seen on the following autumnal dates:— One of

four on September 23, 1893; another of four on October 7, 1888; a third of nine on October 10, 1889; a fourth of *twenty-five* on October 20, 1886. Most of the flocks contained at least a few old males, but some were made up entirely of female or immature birds. It was unusual for White-winged Scoters to associate with water-fowl of any other kind, but on October 3, 1889, I noticed one (an adult male) in a flock of Surf Scoters, and a female of the latter species, shot on October 13, 1890, was with about thirty female and young White-wings.

On October 19, 1885, a solitary, young White-wing was shot in Cambridge River, as it was swimming within thirty yards of the steamer landing, at the foot of the rapids just below Abbott's Mill. This is the only instance known to me of the occurrence of the species elsewhere than in the Lake itself. Nearly all the birds that I have seen there were either in the south arm — usually not far from Great Island — or between the Narrows and the outlet — oftenest off the mouth of B Brook Cove. Comparatively few of them were ever killed, for they kept well out from shore in deep, open water, and almost always were much too shy and alert to permit the approach of a boat — however carefully screened and paddled; nor would they often pass it on wing — after the heedless fashion of Whistlers, Goosanders, and American and Surf Scoters. Immature birds, occurring singly, furnished occasional exceptions to this rule. There was also one good-sized flock — met with on October 13, 1890 — the members of which proved so unsophisticated that we repeatedly got within long shot of them, killing no less than seven in the course of half-an-hour. Later that same day another flock, containing nineteen birds flying low over the water, passed our boat within thirty yards, when I shot two of them.

Although I have never known White-winged Scoters to obtain — or even seek — food in Lake Umbagog, they may do so occasionally. For if, as seems probable, the seven males seen in the spring of 1897 passed eight consecutive days in the Lake, it is not likely that they went that long without eating something. Nor, perhaps, did a solitary drake in rather peculiar plumage, go wholly unfed during the three days (May 26–28) that he certainly spent near the outlet, in the spring of 1896. On no other occasions, however, have I had any reason to suspect that unwounded birds ever remained over a single night in the Lake. Even if some of them find in it animal or vegetable matter on which they can subsist when so inclined, most of them evidently make use of it merely as a temporary halting place during the northward and southward migratory journeys. That they continue

to resort to it at the right seasons I do not doubt, although no very recent records of their occurrence are furnished by my notes. Alva Coolidge informs me that they occur rather commonly in Richardson Lake.

Oidemia perspicillata (Linné).

Surf Scoter. Skunk-head. Gray Coot.

Transient visitor in autumn, usually occurring commonly and sometimes rather plentifully.

September 17–October 27.

As I have already said, but will here repeat, the sportsman who keeps close watch on Lake Umbagog in autumn is likely to see there at that season at least two Surf Scoters to every White-winged Scoter, but not more than one of the former to every ten American Scoters. The Surf Scoter — commonly called "Skunk-head" by the gunners — rarely associates with the White-wing, but it is often seen in company with the American Scoter or "Butter-bill," and not infrequently is numerously represented in flocks of the latter. Coming and going at nearly the same times as the Butter-bill, it has closely-similar habits as well as practically-identical haunts, but being decidedly the tamest of the three, and not especially fearful of approaching wooded or grassy shores, it sometimes alights in forest-encircled waters of no great breadth or extent, where the other two are rarely or never seen. Thus on September 25, 1887, I met with a single bird in C Pond and on October 23, 1889, I killed another in the Androscoggin River about half a mile below where it leaves the Lake. Several miles further down this River, in a flooded meadow connected with it and lying, surrounded by woods, not far above Errol Dam, my friend Henry A. Purdie and his guide, Will Sargent, found four young Surf Scoters swimming together on September 18, 1897. Mistaking them for Black Ducks, Sargent landed and stalked them carefully, shooting one from shore. As the others did not leave the meadow when thus disturbed, he entered it with a boat and quickly slew them all, bringing them back to our camp where I examined them that evening.

Such instances of local occurrences are exceptional, however, for the Surf Scoter, like the two other allied species, prefers at all times to haunt the wider and deeper stretches of the Lake. The largest flock we ever encountered there contained upward of one hundred birds, but not all of these were Surf Scoters. The experience is described as follows in my notes: —

1883, October 27.— Early in the afternoon a perfect cloud of Scoters appeared just to the northward of the Narrows, flying over the Lake, at a height of not less than one thousand feet, at first in V-formation, like Geese, then in a dense, shapeless cluster, making a noise that sounded like the jingling of sleigh-bells, and was distinctly audible at a distance of fully a mile. After encircling this, the longest and broadest stretch of the Lake, they descended almost vertically, with meteoric swiftness, and alighted near the middle. In a boat screened about the bows with grass, Luman Sargent paddled me straight towards them. As we approached they were swimming in dense clusters among which were many adult males, conspicuous by reason of their brilliantly painted bills and snow-white head-markings. There must also have been at least a few American Scoters, for although none of these were actually seen, their shrill cries were unmistakably heard. When we were within about seventy yards of the flock, all its members drew out in a long line, at right angles to our course, and then rose on wing, again making the sleigh-bell sounds as they left the water. I shot down three, all of which proved to be adult female Surf Scoters. Two of these being only partially disabled, dove persistently and well, but were easily followed up and secured, for the Lake was perfectly calm at the time. One pecked at me viciously and bit my hand really sharply, when caught.

On no occasion other than that just referred to was the sleigh-bell noise ever heard from a flock of Surf Scoters, and in this instance it was doubtless produced by American Scoters, for without question there were some of these among the other birds, and they alone are known to make it. The only vocal note that I have definitely traced to the Surf Scoter is the short, hoarse, croaking quack, already mentioned. When there were many birds in the water together one might hear it rather frequently, but single ones were nearly always silent.

Surf Scoters which have received no injury from gunners seldom if ever dive in the Lake, or spend more than a single autumnal day each season anywhere near it. Wing-injured ones must perforce linger in or close about it until they perish of starvation or recover means of flight. It is to be feared that most of them succumb to the former fate, although I have seen them diving persistently for food in shallow water, or even seeking it among sedges along the margins of sheltered coves — after the manner of surface-feeding Ducks. But whenever birds thus disabled and employed were shot and dissected, I failed to find anything in their gullets or stomachs save, perhaps, a little gravel. Some, moreover, were pitifully emaciated, being, indeed, but little more than skin, bones, and feathers.

Late in the afternoon of October 1, 1889 — a bitterly raw day with raging northwest wind and frequent flurries of snow — I was crossing

the south arm of the Lake in a decked-over canoe, when I came upon a female or young Surf Scoter, apparently fast asleep. The prow of the swiftly-moving canoe was not more than six or eight feet from the unconscious bird, when she awoke and raised her head — taking wing an instant later to fly far away over the white-capped Lake. Thus was the fitness of the old-time saying "as sleepy as a Coot" interestingly verified.

Oxyura jamaicensis (Gmelin).

RUDDY DUCK.

Rather rare transient visitor, known to appear only in autumn.
October 12–27.

My few definite records of the occurrence of the Ruddy Duck in the Umbagog Region relate, without exception, to females or young males shot or seen in the Lake; they are as follows: —

1878. A specimen taken this autumn, on a date that could not be ascertained, was skinned and mounted by Mrs. Charles Bartlett, in whose interesting little collection at Poplar Tavern I saw it several months after it was killed.

1882. Four Ruddy Ducks were shot in the Lake during the month of October; one on the 17th by George Heywood; two about the 20th by the Walton camping party; the female on the 24th by Charles F. Batchelder. As I was looking at Heywood's freshly-killed bird he remarked that he thought he had shot "several others in past years."

1884. As Daniel Heywood (George's younger brother) was rowing down the Lake past Great Island on the morning of October 12th, he came upon two Ruddy Ducks and bagged them both. Later in the day he showed them to me at the Lake House. Upwards of two weeks after this (on the 27th of the month) I found a single bird in Black Island Cove, and shot it without difficulty, for it made no attempt to elude my approaching boat other than by swimming as fast as it could, straight down the middle of the Cove, with its body deeply immersed.

1885. Four Ruddy Ducks were shot by Daniel Heywood on October 16th of this year. In what part of the Lake he found them and whether or not there were others with them, the brief entry made, at the time, in my pocket note-book, unfortunately omits to state — probably because I was not then or later more fully informed.

1893. My second and last personal meeting with the Ruddy Duck in life at Lake Umbagog occurred on October 12, 1893, when I saw a single bird flying low over the water past Pine Point.

In the course of some conversation that I had at the Lake House in 1883 with the late Monroe Wormell of Bethel, and noted that same

evening in my journal, he informed me that eight Ruddy Ducks had been found swimming in the Lake together during an autumnal day of a then previous year, when he and other members of his shooting party annihilated the flock, killing every bird. This was the only instance he could recall of ever meeting with the species in the Umbagog Region — despite his long experience there.

Chen hyperboreus hyperboreus (Pallas).

Lesser Snow Goose.

Casual visitor in autumn.

Just before the Lake froze over in November, 1881, a Snow Goose was shot near the Narrows by George Heywood, who found it swimming with some Ducks, and mistook it at first for a Gull. He sent it to a Boston market. When I questioned him about it a year or two afterwards, he remembered it as a rather small bird, almost wholly white, but with black wing-tips. Hence it was probably an adult Lesser Snow Goose, although it may have been immature, or possibly a representative of the Greater Snow Goose (*C. h. nivalis*). Fortunately no similar uncertainty as to identification concerns another specimen killed at the Lake and in my possession. The circumstances attending the capture of this bird were as follows: —

Late in the afternoon (about four o'clock) of October 2, 1896, (a rainy day with light easterly winds), Charles Douglas, Captain of the little screw steamer Aziscohos, was returning in his boat to Lakeside from a trip up Cambridge River to the landing near Abbott's Mill, when he noticed two large, light-coloured birds on a long, narrow strip of marsh, then an island, but at lower stages of water a part of the right bank of the River just above its mouth, about two hundred yards to the westward of the state-line in the township of Cambridge, New Hampshire. One bird was standing, the other lying down with only its head and neck showing above the grass. At a distance Douglas mistook them for Herons, but when within thirty yards of them he saw that they were Geese. The engineer of the boat then fired at them but missed. They rose at once on wing and alighted in the River, after flying less than twenty rods. A few moments later the steamer was again close upon them, when Douglas shot them both, one with each barrel. About half-an-hour before this happened — as I learned afterwards — three young men, coming down the Lake in a canoe, had started these same two Geese from the south end of

Great Island, and had seen them turn in towards the mouth of the Cambridge, after passing B Point opposite Lakeside. As the spot where they were finally found is so very near the state-line, it is probable that they circled over it into Maine before settling, but this, of course, cannot safely be assumed. I bought them of Douglas that same evening. One proved to be a typical young male Lesser Snow Goose, the other a Blue Goose of similar age and the same sex. On skinning and dissecting the former bird I found it to be in good condition, but its skin was wholly free from fat and much thinner and tenderer than that of the Blue Goose. Its stomach and the entire passage leading thence to the throat were crammed with a coarse, wiry, wild grass that grows commonly about the shores and marshes of the Lake. My notes further record that this Goose, when freshly killed, measured 27.50 inches in length and 58 inches from tip to tip of its outstretched wings, and that its soft external parts were coloured thus:—Legs, feet, and webs light greyish olive; toe-nails horn colour; bill nearly uniform dark horn colour shading into pale olive-brown at the base (of both mandibles); irides clear hazel.

Chen caerulescens (Linné).

BLUE GOOSE.

Casual visitor in autumn.

To the account above given of the capture of the only Blue Goose which, so far as I am aware, has ever been taken or seen in the Umbagog Region, little remains to be added except that the bird measured 28.50 inches in length by 53 inches in alar extent; that although in plump condition, it had only a very little fat coating the inner surface of its skin; that its stomach was filled with sand and a compact wad of the same kind of coarse grass that its companion, the Snow Goose, had been eating; that its legs, feet, webs and toe-nails were of a nearly uniform, dark brown colour; that the bill was dull black with flesh-coloured blotches near the tip and along the ridge of the upper mandible; and that its irides were dark hazel in colour.

Although this Blue Goose and its companion, the Lesser Snow Goose, are among the most highly-prized treasures in my collection, it must be confessed that I rarely look at either of them without renewing poignant regret felt at the time of their capture, because of the narrowness of the chance by which I missed seeing them in life. For that very afternoon I was up Cambridge River with a gun in my canoe, and

intending to paddle back a little in advance of the steamer, when some trifling thing or other happened to detain me at the Lake House. Perhaps I should have envied Douglas less had he showed more appreciation of his own good fortune. But I was then, and am still, most grateful to him for parting with the birds, which he did with obvious reluctance, and evidently more in a spirit of kindly generosity than because of the comparatively small money consideration he was willing to accept.

Branta canadensis canadensis (Linné).

CANADA GOOSE.

Transient visitor in spring and autumn, formerly occurring in great abundance, now comparatively seldom seen.

May 8–13; September 17–October 30.

When I first visited Lake Umbagog in 1871 and for several years later, there were still living in Upton a few aged men who, as young men or boys, had come there with the inrush of original settlers between 1824 and 1830. They liked to talk about their early experiences, which apparently had not differed greatly from those of pioneers elsewhere in American forests, except that here there had never been any trouble with Indians or dangerous wild beasts. Much of their attention had been given to hunting, trapping, and fishing, by means of which they had largely supported themselves and their families before, if not also after, the time when their farms were brought under cultivation and stocked with cattle, sheep, and poultry. At first they seldom wasted powder and lead on anything smaller or less valuable than a Moose, a Caribou, a Bear, a Beaver, an Otter, or a Sable, but after such creatures had become scarce and difficult to obtain in the neighborhood of the Lake, the wild-fowl which frequented it began to be sought, especially by young hunters living on its shores. Some of these — including Gideon, Leon, and Joseph Stone, whom I knew — remembered having seen acres of water fairly crowded with Ducks and great flocks of Geese numbering hundreds of birds each. The Geese, they said, seldom tarried long in spring, and were never known to occur in summer, invariably going further north to breed; but on returning in autumn were accustomed — before having been much molested — to frequent the Lake numerously and continuously for weeks in succession, haunting chiefly the grassy shores of Great Island by day, and flying thence northward at evening to pass the night near the outlet. The Stones hunted them system-

atically and successfully for years, lying in wait for them in blinds of grass or bushes erected at various places on or near Great Island, and killing very many of them with an unwieldly but most destructive big bored, long-barreled gun that was heavily loaded and fired from a rest, into flocks feeding along the shores. By reason of this and other persecution on the part of native gunners, most of the birds had learned before 1850, it was said, to shun the Lake at every season.

My personal experience with Canada Geese at Lake Umbagog has been limited to meeting with them on four occasions, viz.:—October 30, 1884, when a flock of six, flying southward high in air, passed over me about noon, near the mouth of Cambridge River; October 8, 1889, when I saw one flying rather low, down the middle of the Lake, honking loudly; September 29, 1894, when another solitary bird, alighting near me on Block Island, was stalked and shot; September 28, 1895, when a flock containing fully thirty Geese, migrating due south at mid-day appeared at Pine Point.

Besides the instances of occurrence just mentioned my note-books supply records of fourteen or fifteen others which were reported to me by local guides and hunters, usually during the month of October, and mostly between the years 1880 and 1894. As a rule the birds were merely seen flying southward at considerable elevations, but every now and then I would hear that a flock had settled in the Lake about sunset and remained there during the following night, keeping a safe distance from shore, either in the south arm or in the still wider reach that extends from Metalluc Island to the outlet. This happened once in October, 1889, twice or thrice in October, 1883, and no less than four times between May 8 and 13, 1887. I have been unable to learn, however, that during the past forty years a *flock* of Geese has ever been observed feeding anywhere about the shores of the Lake, or that within this period more than a half a dozen have been killed. Hence while Geese continue to visit the Lake not so very infrequently, they have long since practically ceased to expose themselves to much risk of being shot there.

Canada Geese are popularly supposed to be exceedingly wary birds, and on most occasions they certainly behave in a way to fully justify this reputation, but single ones — even of mature age — that have presumably straggled away from their companions and become exhausted by long flights are sometimes very easy to approach. Such was the case with the bird already referred to that I killed on September 29, 1894. In company with two other men I was standing on the shore preparing to take a photograph of Black Island, when the

Goose approached on wing over the Lake, coming directly towards us from the direction of the outlet. Alighting in the water within one hundred yards of us, it swam ashore and clambered up on a rock. After securing a negative in which the bird appears as a tiny speck, we decided that, despite its apparent tameness, it probably would not permit us to get much nearer by direct approach, and that the only reasonable chance of doing so would be by first going well out into the Lake and then around to the other side of the Island. This plan was carried into effect with perfect success. To my surprise the Goose did not show any alarm at our movements when we were taking down the camera and embarking in our canoe. Once it raised its head and looked at us for a moment as we were paddling away. We soon shut it out of sight behind the Island and then I felt sure of it. On landing I walked erect, with risk of being seen, to a little ridge just beyond which we had left the Goose. It had taken to the water during the brief interim and with lowered head was apparently feeding. On shooting and dissecting it I found that it was a male in excellent condition, but not fat, and that it showed no trace of previous wounds or of illness of any kind. In view of these developments it seems strange that the bird should have sought so barren and rocky a shore; stranger still that it should have alighted there without first reconnoitring the place; and strangest of all that it should have allowed us to circumvent it so easily and openly.

On September 29, 1897, Luman Sargent was rowing down Cambridge River from the Lake House when he came upon a single Goose of exceptionally large size, swimming in mid-stream, which allowed him to get within forty yards before it rose and flew out over the Lake, honking vociferously.

The only instance that I recall of the finding of a Canada Goose in the water anywhere out of sight of the Lake happened on October 11, 1889, when Warren Noyes shot one in Bottle Brook Pond.

Alva Coolidge tells me that a flock of fully two hundred Canada Geese alighted in open water at the outlet about the middle of March, 1908. They remained there nearly two months, or until the Lake was wholly free from ice about the middle of May. He saw them daily through April when he was working at Mr. Billings's camp at Spelman Point. Some hunters from the Magalloway settlement came down and fired a number of shots at them, with what success he knows not. Even this did not drive them away. No recent instance of so large a flock alighting in the Lake, or of any Geese remaining there so long at a time, is known to Alva or to me.

Botaurus lentiginosus (Montagu).

BITTERN.

Formerly a not uncommon summer resident. Now of rare occurrence, except in autumn when it occurs regularly and rather commonly.

May 9–October 23.

When, in company with Ruthven Deane, I reached the old Lake House in Upton, late in the afternoon of May 30, 1871, and looked out for the first time over the Cambridge River marshes to the westward, the pumping notes of a Bittern, coming from that direction, reached our ears at frequent intervals, although we could see no place where such a bird was likely to find shelter or even foothold. For the marshes were then so deeply submerged that had it not been for the curving lines of dead trees which marked the otherwise untraceable channel of the sluggish river that wound through them, one might have mistaken the entire area they cover for a cove of the Lake. But when, a few days later (on June 3), we started out in a boat to explore them — accompanied by C. J. Maynard, who had joined us at the Lake House during the interim — we came upon a small floating island, which proved to be the home of the Bittern and his three wives. He was credited with that number because no other male Bittern was seen or heard anywhere about the Lake that season, albeit three sitting females were flushed from their eggs soon after we landed on the island, which was circular in shape, about twenty yards across and densely covered with bushes, chiefly alders, cornels, (*Cornus stolonifera*), and Cassandra, with here and there a muddy or grassy space. Near its centre a few green and vigorous young larch trees rose to a height of fifteen or twenty feet. Interlacing roots of trees, shrubs, and grasses had combined with decaying vegetable matter, alluvial soil, and drift-wood, to form a great, soggy raft, buoyant enough to rise and fall with the Lake, but so thin and flexible that big waves, rolling in under it, procured corresponding and very noticeable undulations of its surface. This was sufficiently elevated to appear comparatively dry until trodden on, when it gave beneath our steps, like that of a quaking bog, until the water came half-way to our knees. The island was then firmly anchored — probably by a few strong roots — to solid ground some five or six feet below, but we were told that not long before this it had come drifting across the flooded meadows from their western end. About ten years later it again broke loose from its moorings and journeyed still further eastward,

until stopped by a group of stubs. The Bitterns' nests were on the damp ground among the Cassandra bushes and within a few yards of one another. They contained respectively six, five, and three eggs, all quite fresh. The sitting females clung to them closely, rising underfoot at the last moment, when almost trodden on, and then flying off to the mainland whither the male had preceded them. He continued to pump on the island up to at least June 10, (the date of our departure), although all three nests had been despoiled of their contents on the 3d. Whether or not the females remained there with him and laid again we failed to ascertain. Early in June of the following year, (1872), a Bittern's "nest with five perfectly fresh eggs" was found on this same island, but exactly when or by whom my notes fail to state. They further mention that "several pairs" of Bitterns were breeding, that season, "on floating islands," in the marshes near the mouth of the Cambridge. Almost without question the observations thus referred to were made by Ruthven Deane and me, but as to that I cannot now remember definitely.

Since the year last mentioned, no nest of the Bittern has been found, to my knowledge, on the island just described, but on May 26, 1876, I heard a bird pumping there, and another answering him from a similar but smaller floating island, lying half a mile or more further to the westward. Here I took two Bitterns' nests during the first week in June, finding the first on the 3d of the month, when it held five eggs, two with embryos just beginning to form, three without trace of them. The nest was exceptionally small, perfectly flat, and placed on dry ground among thickly growing Cassandra bushes. The bird sat closely, croaked repeatedly when flushed, flew directly off out of sight, and was not again seen. The discovery of the second nest was attended by an interesting experience described nearly as follows in the journal:—

1876, June 5.— Landing again on the little floating island to look for nests I was parting the matted Cassandra bushes with my paddle, when I felt something tap its blade, and a moment later saw a Bittern sitting within a yard of me on her nest. She was so puffed up as to completely overspread the nest and also to obliterate her own normal form and outlines, presenting the appearance of a disheveled heap of brown feathers, in the middle of which could be seen her small head and dagger-like bill, pointing straight at me from between her shoulders, not a trace of her neck being visible. After looking at her wonderingly for awhile, I again advanced the paddle-blade, when she struck at it viciously, at the same time erecting the feathers of her crown. Her deep-set yellow eyes betrayed no signs of fear, but instead glared at me fiercely and somewhat sullenly. Quite evidently she had no thought of leaving her

eggs, but was prepared to defend them as best she could, to the very last. Yet there were only two, and these quite fresh besides being curiously malformed. Before I could get a sight of them, it was necessary to remove the bird, and this proved no easy matter. For several minutes I actually tried in vain to lift her off the nest with my canoe-paddle, prying up with it so forcibly that its thin blade bent under her body almost to the breaking point. At length I managed so to apply its sharp edge that her head was pushed forward and down until it rested on the ground, where I held it firmly until she began gasping for breath. Then the paddle was withdrawn, when the Bittern at once took wing in silence and flew across the flooded meadows to an opposite shore. The eggs were left in the hopes that more might be laid but I doubt if the bird ever returned to them, for they were wet, cold, and apparently deserted, when I revisited the island a few days later. Both were then taken and I have them still. Although of normal size they are peculiar in respect to their contour-lines, these being asymmetrical and somewhat angular in places, as if the shells had been subjected to uneven pressure when soft. The nest was a rather bulky structure composed mostly of dead twigs, but having some dry grass arranged to serve as a lining. Like the nest found on June 3d, it was placed on the highest and dryest part of the island, but unlike it, was so completely overarched by the thickly-growing Cassandra bushes that on entering or leaving it the bird must have had to take several steps in a crouching posture beneath the matted, interlacing stems. Although only one pumping Bittern seemed to be frequenting the island, there was, as I have said, another not far off who, perhaps, had mated with one of the brooding females, but for reasons of his own preferred to live somewhat apart from her.

Apparently 1876 is the last year when Bitterns bred anywhere in the marshes at the mouth of the Cambridge River. But four or five miles up this stream, in what are known as B Meadows, I have found one or two birds in May or June on many subsequent occasions, the latest of which was June 14, 1903. Some of the grassy meadows bordering the lagoons that extend back from the Androscoggin River, between the mouth of the Magalloway and Errol Dam, have also been frequented by Bitterns in early summer, within rather recent years. On June 5, 1896, I started a bird in one of them, (Sweat Meadow), and in another, (Curtis Meadow) a male was heard pumping on June 7, 1897, on an immense floating island admirably adapted for a nesting place. It may be that these and other similarly remote, forest-encircled meadows lying no further from the Lake, continue to resound in May and June with the stentorian voices of pumping and breeding Bitterns. This I cannot confidently either affirm or deny — not having visited any of them at the right season since the dates just given — but from what local hunters and guides have told me, I am inclined to think that the birds have almost, if not quite, ceased to

nest regularly in most of their former haunts throughout the Umbagog Region.

Although the Bitterns which once bred so commonly on floating islands near the mouth of Cambridge River were sometimes robbed of their eggs, they seldom suffered molestation other than this in spring; in late summer and early autumn, however, very many of them were killed by sportsmen hunting for Snipe, few of whom ever spared a Bittern that rose within fair range, although the unfortunate bird was more likely than not to be left where it fell, after its life had thus been wantonly sacrificed. An Upton man especially addicted to this practice said, with a laugh, when I asked why he indulged in it, "because I love to see a Stake Driver double up and pitch down into the grass when struck by a charge of shot." He denied having any dislike for the poor birds and admitted that no use whatever was made of those he slew. After their local extinction had been accomplished, he expressed the conviction that he himself was chiefly responsible for it — as may well have been the case. Yet he did not seem to regret it — although an exceptionally intelligent man, and by no means without sympathetic interest in the wild life about the Lake shores where he then dwelt.

In his Birds of New England (p. 405, 406) Mr. E. A. Samuels says that Bitterns breed "in communities, sometimes as many as a dozen pairs nesting within the area of a few rods," and that "in the neighborhood of the Richardson Lakes, in Maine," in "some of the tangled, boggy, almost impenetrable swamps, these birds have several heronries, which they have inhabited for years"; adding that "when their haunts are approached, the birds rise with a guttural note, like the syllable *quăk*, and alight in some tall tree, from which they silently watch the intruder." All this is contrary to my own experience, which has been that Bitterns habitually nest widely apart from one another, and that they rarely alight in trees or bushes at any season. The only exceptions to the former rule that have ever come under my observation are those furnished, as above narrated, by the finding, in 1872, of three nests in a small floating island in Lake Umbagog, and that of two nests, in 1876, on a similar and adjacent island. In both instances the presence of nests so near together might be considered due to the absence of any other available breeding ground in that neighborhood, but the fact that on one island there was evidently only a single male bird in attendance on three sitting females would apparently indicate that Bitterns may sometimes be inclined to breed in colonies, and also to polygamy. As for their perching in trees, I

have certainly never known any of them do it, although once, at the Lake, a bird rising near me at the edge of a meadow, did seem to fly out from somewhere among the lower branches of a dense-foliaged maple.

After their breeding season is over, one may still meet with Bitterns almost anywhere about the Lake or along its connecting rivers. Some of them come, without doubt, from secluded bogs at no great distance, where they have spent the summer; others, probably, from regions lying decidedly further north, although these do not seem ever to furnish any very considerable additions to the locally-bred Bittern population. The birds occur most commonly during the month of September, but even then are never plentifully represented, it being unusual to see more than one or two of them in the course of a single day, while no more than that number may be noted in a whole autumn. Of course they are likely to escape observation, because of their habit of skulking among dense herbage, but they cannot hide successfully from a keen-nosed pointer or setter, and my dogs have never found many of them, even at seasons of high water when their haunts are somewhat circumscribed. In dry autumns they scatter widely over the extensive tracts of low-lying, grassy marsh-lands, which then afford them almost unlimited feeding grounds. Almost no evidence as to what they commonly eat has been furnished by my field-experience at the Lake, for I seldom shot any of them or had opportunities of watching them engaged in a search for food. According to my notes, the stomach of one killed near the Lake House by W. E. Skillings, on October 14, 1882, "contained a water-beetle and nothing else."

Ardea herodias herodias Linné.

GREAT BLUE HERON. BLUE HERON. CRANE.

Summer resident, formerly abundant, still not uncommon.
May 12–October 27.

The Umbagog Region used to be a famous resort for Great Blue Herons. When I first became acquainted with it in 1871, and for some ten or fifteen years later, they were more abundant there than I have ever found them elsewhere, except perhaps in Florida. The local guides and hunters called them either "Cranes" or "Blue Herons," and do so still. In late summer and early autumn, after their young had become strong of wing, they resorted to the Lake by hundreds, to fish in shallow, reedy coves and muddy, grass-fringed

lagoons. One might encounter them everywhere along its shores, and perhaps see as many as twenty or thirty rise at once from some sheltered nook, to alight in the top of a neighboring tall pine tree, where they would stand erect, with upstretched heads and necks, looking not unlike gigantic cones. At seasons of high water, and when incubating their eggs or caring for young still in the nest, they resorted less numerously to the Lake, and scattered more widely in search of food. At such times, as well as at most others, it was not unusual to meet with them far up small rivers like the Cambridge, where the interlacing branches of old woodland trees completely overarched shallow reaches of swift-flowing water; or along the courses of sluggish brooks, winding through shaggy, brush-grown meadows; or about ponds less than an acre in extent and buried deep in primitive forest. Indeed there was, throughout the entire region, scarce a square rod of muddy, sandy or marshy shore, bordering on fish-inhabited stream or pool, which the big birds did not visit more or less regularly. Nor were they averse to frequenting fishing stations much disturbed by man, for from my chamber window at the Lake House I often had as many as half a dozen of them in sight at once, stalking sedately about the edges of a pond in the neighboring marsh, or standing half-leg deep in its muddy waters, intently watching for fish. They were sometimes shot at with rifles by sportsmen or guides lounging on the front piazza of this once popular, but now deserted, backwoods hostelry. Few of these men ever killed a Heron, however, or for that matter seriously tried to do so. Indeed the birds then suffered comparatively little molestation from any one, and continued to hold their own from year to year.

About 1885 I noticed that the Great Blue Heron at Lake Umbagog was beginning to diminish in numbers. They have continued to do so ever since, although — as is usual in such cases — there have since been occasional years of partially renewed abundance, sometimes rather marked. Thus, as my notes remind me, I thought at the close of September, 1895, that I had seen more Herons about the Lake that month than during any previous September "for the past fifteen years." On August 11, 1896, I had eleven of them in sight at once, scattered along a muddy shore of the Lake near the mouth of Cambridge River, and also in view at the same time, perching on stubs, an Osprey and two Eagles — "a white-headed and a brown one." In the spring of 1903, upwards of one hundred pairs of Herons assembled to breed in the neighborhood of Sunday Cove, but nearly all of them were wantonly shot early in June while sitting on, or flying

about, their nests — as I shall presently relate. Nevertheless, the Heron population of the Umbagog Region seems to have recovered in a measure from this crushing blow by the summer of 1907, for during August of that year I saw birds almost daily, and sometimes as many as four or five together — in the Cambridge River marshes.

While staying at the Lake House in the spring of 1872, I heard of a large heronry said to be situated not far from the Androscoggin River, somewhere between the Lake and Errol Dam, although no one except Gideon Stone, Captain of the steamer DIAMOND, seemed to know its precise location. My notes state that he visited it in June of the year just mentioned, bringing back several sets of slightly incubated eggs. All that he would say concerning this experience was that the birds were breeding very numerously in a swampy forest and in trees so tall and branchless that it was difficult to reach the nests, adding:—"I had to go up with bare feet, prodding my toe-nails into the bark" — for climbing irons were then unknown in the Lake region. During the next eight or ten years I was told from time to time that the birds were still nesting in the same place. Just where this was I failed to learn, however, either by inquiry or by personal exploration made with the assistance of native guides and hunters.

On the evening of June 7, 1896, I was sitting before the office fire of the little hotel at Lakeside, when a nephew of Mr. Chandler, its landlord, entered, bringing a report of having found a colony of Great Blue Herons, that afternoon, about a mile below the bridge which spans the Androscoggin at Errol. It was, he said, in dense woods between the public road leading to Berlin and the western shore of an expansion of the river known as Bragg's Bay. He heard Herons "squawking in every direction," and saw three birds fly from their nests, all of which were in one tree, a tall elm. I was unable, at the time, to visit this heronry, and heard nothing more of it afterwards. Possibly it was the same that Gideon Stone knew of, although much more likely, in my opinion, to have been established long after his day.

No colonies of breeding Herons other than those already mentioned have ever been reported to me at Lake Umbagog, but in the autumn of 1889, a man supposed to be reliable, but whose name I failed to note, assured me that in the spring of that year he had seen a nest with a Heron sitting on it, in woods not far from the Lake. He thought that the birds had then ceased to breed in colonies, but might be found nesting singly throughout the forests surrounding the northern end of the Lake — an opinion which remains unconfirmed by any evidence

that has since been brought to my attention, and obviously is also somewhat discredited by the fact that good-sized heronries are known to have been maintained in subsequent years.

Just as I was about to depart from the Lake on the morning of June 14, 1903, Alva Coolidge informed me that Great Blue Herons were nesting in considerable numbers in upland woods only a few hundred yards to the rear of the picturesque ledge that rises precipitately out of the water on the western side of the entrance to Sunday Cove. His knowledge of this colony, however, was then confined to what he had heard of it from others, some of whom asserted that it had been there for several years. At my request, he visited it a few days later, and shortly afterwards sent me a full written account of his experience, which evidently moved him deeply, as well it might, for human — or rather inhuman — vandals who had preceded him had dealt so mercilessly and thoroughly with what had obviously been a large and flourishing heronry that practically all the parent birds had either been killed or driven away. Indeed only one that came to feed its young still in the nest was seen on this occasion. Returning the next day with a friend, Alva found no less than fifteen or twenty adult dead Herons, buried under prostrate logs, and eight more, with two Fish Hawks, lying on the surface of the ground, but partly overspread by fragments of rotten wood stripped from a nearby crumbling tree trunk. Thus it would seem that the perpetrators of all this dreadful slaughter were at least sufficiently ashamed of it to make some attempt to obliterate conspicuous evidence of it. No doubt there were other and perhaps still more numerous Herons slain and either taken away or more effectively concealed. Those discovered had not been despoiled of any of their handsome nuptial plumage. They were so far advanced in decomposition as to indicate that they might have been dead for two or three weeks. Not far from them was a recently deserted camp on the shore of the Lake, about which were strewn wings of Ruffed Grouse, which must also have been killed at the very height of their breeding season. The heronry contained upwards of one hundred nests built in tall trees sixty-five or seventy feet above the ground. By climbing seven of the trees, Coolidge and his companion were able to look into very many of the nests — six of which were in one tree. Practically all were empty, having, no doubt, been robbed of their contents by Crows and other predacious birds after the Herons were killed. Only one egg was seen, and that had a hole in it. The men responsible for this grim woodland tragedy remain, I believe, unknown — and hence unpunished. One does not

like to think that any such can exist in an enlightened New England state. Their foul deed was far more reprehensible than that ever committed by plume-hunters in the south, for the latter are tempted by the high prices paid for Egret feathers, and the money received for these commonly goes to the support of poverty-stricken families.

Great Blue Herons are exceedingly wary birds. In the daytime their eyesight is far keener and more discriminating than that of any other creature which inhabits or visits the Umbagog Region. Even a Duck Hawk or a Golden Eagle is less quick to notice and interpret signs of danger. Often, when I have been stalking a flock of Ducks and fancying myself perfectly concealed, has a Heron, standing near them, discovered me and flown hurriedly away, although it seemed impossible that he could have either seen or heard me. One may, of course, occasionally meet with young and inexperienced birds whose senses of sight and hearing are somewhat less acute. An instance of this kind happened on September 7, 1895, when, with a guide, I was awaiting the evening flight of Ducks at Moose Point. Before they began arriving and not long after sunset, a Great Blue Heron alighted in a shallow pool, within twenty yards of where we were lying quite motionless and partially hidden among some brakes. He noticed us at once, but, being evidently unable to make out just what we were, stood for several minutes erect and immovable, gazing at us intently. Finally he sprang into the air and, soaring in broad spirals, came back over us again and again at constantly increasing heights, as if reluctant to depart without more fully satisfying his doubts or fears regarding us. During the whole time that he remained in sight on wing, he kept uttering a low *coc-coc*, very unlike the ordinary flight call of the species, which is a nasal, somewhat vibrant *ank* or *haink*, startlingly loud when heard near at hand, and often distinctly audible a mile away in calm weather.

Although gifted with extraordinary keenness of vision by day, Great Blue Herons do not see well by night. Then they will often fly low over a man fully exposed to their view, without taking the least notice of him. Even more unheeding was a bird which settled near me on a mud-flat at Moose Point, after the sunset glow had almost faded from the west, on the evening of September 26, 1895. He and I were some thirty yards apart, with not so much as a tuft of grass between us, yet I sat in my boat looking at his dimly-outlined form for several minutes, without in the least attracting his attention. Nor did he pay heed to my presence when I paddled slowly past the mud-flat until, at length, the shaft of the paddle happened to strike against

the edge of the boat; then, of course, he instantly spread his broad wings, and with loud cries of alarm took flight.

Many sportsmen assert that the Great Blue Heron will strike viciously, and with rather sure aim, at the eyes of men and dogs, when wounded and incautiously approached. Although this has never happened within my own experience, I am not disposed to doubt that the bird may, on occasion, use his acutely-pointed, dagger-shaped bill in such a way. Despite the possession of so formidable-looking a weapon, and notwithstanding his imposing size, he is not always safe from the assaults of predatory creatures of scarce greater bulk who sometimes even overcome and destroy him. In September, 1888, I found on the banks of Cambridge River above the Sluice the remains of two Herons which my guide, Luman Sargent, thought had been killed and eaten by Eagles. He assured me that he had actually seen these birds capture fully-grown and feathered Herons, which made no attempt to defend themselves, although they tried their best to escape by doubling and twisting on wing, squawking loudly all the while. Being, like most Umbagog hunters, unaccustomed to distinguish between Golden Eagles and immature Bald Eagles, he was unable to say as to which species the birds he had seen belonged. In my opinion they must have been Golden Eagles, for I have never known Bald Eagles to molest Herons at the Lake. On September 21, 1897, however, I did see a Golden Eagle attack a Heron which had alighted, a few minutes before, on the edge of a creek in Curtis Meadow within eighty yards of me. Coming over it at an elevation of about three hundred feet, the Eagle stooped almost straight down with meteoric velocity. Unfortunately the Heron was concealed from my view at the time by a fallen tree-top. Just after the Eagle descended behind this, the Heron made such an outcry that I felt sure it had been seized, but a moment later it appeared on wing and flew hurriedly off, evidently badly frightened. The Eagle, a nearly-adult bird, did not pursue it.

Shortly after sunset on the evening of September 22, 1895, I saw a Great Blue Heron rise from the shore at Moose Point and mount circling to a height of full two hundred feet, closely followed — or rather *preceded* — by a Short-eared Owl, who bullied it with amazing audacity, keeping always a little above it, and darting down every few seconds to deal it a blow on the back, but whether with bill or talons, I could not be sure. Helpless, apparently, to either dodge or repel these attacks, the Heron did nothing but continue to soar in circles, croaking incessantly and protesting each onslaught of its

tormentor by a volley of cries so loud that they might have been heard a mile away. The Owl probably had no thought of really harming it, but was merely amusing himself by frightening it. After a minute or two, he left it and glided off on a long downward slant towards Richardson's Carry.

The Great Blue Heron does not often give vent to prolonged, squawking outbursts such as those just mentioned, unless he be hurt or terror-stricken. When, as sometimes happened at night, we heard with them, and coming from the same direction, the hooting of Great Horned Owls, or the barking of Foxes, our guides were likely to think that a Heron had been threatened, if not seized, by one or the other of these rapacious creatures. If they ever really succeed in surprising and overcoming a full-grown Heron, they must have exciting sport with it — besides securing an ample feast. Occasionally, after listening to their voices mingling in the dead of night with those of affrighted Herons, we would find in the marsh, on the following morning, fresh remains of a slaughtered bird; but about these no tracks or other signs which served unmistakably to betray the author of such a midnight tragedy were ever discovered — even by the keen-eyed guides.

The Great Blue Herons of the Umbagog Region fish oftenest, and perhaps also most successfully, in the early morning, and for about an hour after sunset. They seldom do so at any other times in places where they are much persecuted by man, but wherever they feel reasonably secure from such molestation one may see them seeking their prey at every hour of the day, even during the brightest weather. As it is by no means unusual to hear them calling throughout the night in the marshes and over the Lake, I used to think that darkness did not much interfere with their quest for food. This, however, is not the opinion of Umbagog guides who, during years when jack-hunting was still permitted by law — if not also, as is to be feared, since it became illegitimate — have spent many a calm night in early autumn "floating" for Deer about the Lake, or in nearby ponds or streams. During these nocturnal excursions Great Blue Herons were frequently approached on muddy or marshy shores, and invariably were *asleep* when first revealed by the powerful rays of the jack-lamp. On awakening, they would gaze at the light in stupid bewilderment, and sometimes let the boat that bore it at the bow get within a yard or two before they made out what it was. Such, at least, has been the uniform testimony of several reliable men, including Luman Sargent. But as jack-hunting is unprofitable — and hence rarely undertaken — except during dark nights, the evidence it has yielded

fails, of course, to show that Herons may not remain wide awake and also engage in fishing, when the moon is shining brightly. That they are sometimes thus active, under such conditions, is my rather strong belief, although I cannot claim to know that it is so.

My journal contains several passages descriptive of the appearance and behaviour of Great Blue Herons engaged in fishing. From these the following has been selected:—

1896, AUGUST 13.— While paddling down Cambridge River from the Lake House shortly before sunset this afternoon, I saw four Herons, one adult, the other three young, ranged along the bank, near the outlet of a pond, watching for fish. Standing leg deep in water and perfectly motionless, with outstretched necks and downward pointing bills, they awaited with infinite patience the approach of hoped-for prey, reminding me rather forcibly of human anglers, similarly employed. Not one struck at anything, or even changed its position, during the fifteen or twenty minutes that I had them under my glass.

SEPTEMBER 4.— Very unlike the behaviour of the birds watched on August 13, last, was that of a Heron which alighted, about ten o'clock this forenoon, on a point in Leonard's Pond, within one hundred yards of where I lay concealed. After looking keenly around for a few moments, this bird waded out into the water up to his belly, and then began marching to and fro, carrying his neck extended nearly to its full length and on a level with his back, but well to one side of his body, and keeping his head so conspicuously tilted over as to suggest that he must be blind in one eye and employing only the other to gaze downward — as may, indeed, have been the case. Moving thus he plunged his head under water several times each minute, sometimes pausing to do this, but oftener keeping on with measured, unhurried strides. His thrusts were made almost straight down and rather swiftly, but not much more so than are those of a domestic fowl engaged in picking up grain. Although apparently delivered not at random, but at objects which he either saw or thought he saw and was eager to seize, they resulted in the capture of only a single fish, and that a small one, which the bird swallowed, after shaking it violently in his bill. At least I was unable, with the aid of an excellent glass, to make out that he ever brought up anything else.

We used to see the tracks of Herons in many places about the Lake where the water was at least two feet deep. On a smooth sandy or muddy bottom they showed very plainly when the Lake was perfectly calm, but when it was ruffled by wind, they became indistinct and unnoticeable. When its surface was only slightly agitated, they sometimes appeared distorted and much magnified. If, at such a time, one looked down on them over the side of a boat floating thirty or forty yards away from the nearest shore, it was not difficult to imagine

that the huge, shadowy footprints, evenly spaced and leading still further out, had been left there ages before by some bird of towering height or peculiar habits, addicted to wading through or walking beneath, water of almost any depth.

When a Great Blue Heron rises on wing to fly only one or two hundred yards, it will sometimes keep its neck outstretched and its legs hanging down until it realights; but, if starting on a much longer flight, it rarely goes more than a rod or two before doubling its neck in on its breast — thus bringing its head in close contact with its back, at the same time extending its legs rearward in line with its body — so that they look like a prolongation of its short tail. In calm weather I have seen Herons cross the widest part of the Lake so very near its glassy surface that this was conspicuously dimpled at each downward stroke of their wings, although these did not apparently quite touch the water. At other times I have watched them circling overhead so high in air that they looked no bigger than Pigeons or Plover. As a rule they wend their leisurely way — even to rather distant places — at no greater elevation above earth or water, than two or three hundred feet, and often they will follow the course of such a narrow, tortuous stream as the Cambridge for mile after mile without once rising above the crests of its bordering forest trees. Ordinarily their wings produce no audible sound, but sometimes of a still, foggy morning we heard those of a bird passing very close at hand make a rather loud *whoof, whoof, whoof,* something like the distant puffing of a locomotive engine. This happened only when the Heron was flapping frantically to increase his distance from us, after coming upon us suddenly out of the obscuring mist.

In New England we have many birds more brilliantly, or strikingly, or pleasingly coloured or adorned than the Great Blue Heron, and some, perhaps, more graceful of movement, at least in flight; but not one other can equal him in picturesque impressiveness. Nor is there another which could not better be spared from all inland places where water or marsh predominate in the landscape. The presence of the Heron adds immeasurably to the interest and effectiveness of such scenery. Indeed he seems so characteristic and indispensable a part of it that we hardly care to think of it without picturing him standing motionless on some grassy point, or winging his way majestically athwart the sky. He is perhaps most to be admired when absorbed in fishing and viewed near at hand — yet unconscious of such observation. For then he is likely to assume statuesque poses of exceeding grace, which display to the best advantage the faultless outlines of his

exquisitely-modeled form and slender, sinuous neck. That a creature which so delights the eye of every appreciative beholder should ever be grudged the few valuable food fishes he may occasionally eat, seems almost past belief. Yet there are men not unintelligent, nor even devoid of interest in nature, who because of such trifling depredations, would have Herons of every kind outlawed and destroyed.

Casmerodius alba egretta (Gmelin).

EGRET.

Casual visitor.

In August, 1887, Mr. Charles I. Goodale, the Boston taxidermist, showed me a freshly-mounted Egret which had been brought to him in the flesh on the 12th of the month by a Mr. H. E. Hinkson, of 271 Franklin Street, Boston, who said that he had killed it on the 8th at Rangeley Lake, Maine. I was afterwards assured by a sportsman whom I met at Lake Umbagog, and who claimed to have actually seen the bird shot, that it was killed on August 9th, on the banks of Kennebago Stream, by a man named Arthur Holt. In default of any other evidence, I am inclined to give preference to the latter data. My notes state further that the specimen lacked all trace of nuptial plumes and was apparently immature, although fully grown and feathered.

Butorides virescens virescens (Linné).

GREEN HERON.

Rare summer visitor.

On the evening of August 28, 1874, a freshly-killed young Green Heron in full autumnal plumage was brought to me at the Lake House, by a local hunter, who had shot it earlier in the day on the shore of the Sargent Cove, at the southern extremity of Lake Umbagog, in the township of Cambridge, New Hampshire. Failing to realize at the time that the bird was a local rarity, I neglected, unfortunately, to preserve its skin.

It was not until more than thirty years later that I again set eyes on a Green Heron at Lake Umbagog. This second bird, a handsome adult, was met with in Upton, Maine, very near the Lake House, on June 5, 1909. As it passed me on wing, within fifty yards, the rich

chestnut colouring of its extended neck and the peculiar blue-green of its back were clearly seen. After perching for a minute or two in the top of a tall tree that stands at the foot of the rapids just below Abbott's Mill, it flew across a cove and alighted on a floating log at the mouth of Stony Brook. Here it remained less than a minute before taking flight again, when, as if startled by something, it dashed off hurriedly inland through a belt of trees, uttering first a cackling *că-că-că-că-că* and then the commoner and more characteristic *scow* cry.

No other instance of the occurrence of the Green Heron in the Umbagog Region, or about the lakes lying immediately to the northward, has ever come to my knowledge. Nor have I more than a single record for Bethel, Maine, and this, unfortunately, cannot be given very definitely. It concerns a young bird killed in the immediate neighborhood of Bethel, in August or September, about the year 1907. The specimen was rather crudely mounted, and on exhibition in the village barber shop, when I saw it a few weeks later. The barber valued it highly, because none of the local gunners had ever seen anything like it. What he afterwards did with it, I do not know.

Nycticorax nycticorax naevius (Boddaert).

BLACK-CROWNED NIGHT HERON.

Of rather common occurrence in summer and early autumn, but unknown to breed.

June 7–October 14.

Although I have never known Night Herons to breed anywhere in or near the Umbagog Region, they are seen there not infrequently in August and September, coming, no doubt, from nesting haunts situated at a considerable distance, probably to the eastward, on the coast of Maine. There may also be some influx of migrants flighting from regions lying further northward, especially during the month of October, when, however, only a very few birds are met with. I have noted none in May or July, and but one in June — on the evening of the 7th, 1897, at Leonard's Pond. They usually begin to appear early in August and continue to do so more or less commonly, if somewhat sparingly, up to about the last of September. Ordinarily they occur singly or not more than two or three together, but on August 2, 1873, a flock of fully a dozen, disturbed by the noisy approach of the steamer DIAMOND, in which I was voyaging at the time, flew out from some spruces on the banks of the Magalloway

River, at least six miles above where it unites with the Androscoggin. They sometimes go much further up the former River, for at "Camp-in-the-Meadows," fifteen or more miles above Aziscokos Falls, I found, on September 18, 1898, the freshly-severed wing of a young bird which a guide said had been killed in that neighborhood only a day or two before. I have also started them along Cambridge River a mile or more above Abbott's Mill. From these and other equally-secluded river-reaches or forest-pools, where their diurnal slumbers are comparatively seldom interrupted, at least by man, they fly at evening towards the Lake to feed all night long about its shores, resorting mostly to the marshes about the outlet and near the mouth of Cambridge River, whenever these are neither too dry nor too deeply submerged to be attractive. Some birds probably come every evening from more distant roosting places than any of those above indicated, and perhaps even from the sea-coast, for they do not always reach the Lake before nine or ten o'clock. Their approach to it at such hours is always heralded by the hoarse, yet far-reaching, *quawks*, which they invariably utter at short, regular intervals, during protracted flight. Thus noisily and unmistakably do they proclaim their comings and goings to campers about the Lake, even when it is enshrouded in darkness impenetrable by human eyes. Their cries commonly cease altogether as soon as they alight, for when feeding they are habitually among the most silent of birds.

Rallus virginianus Linné.

VIRGINIA RAIL.

Rare transient visitor in early autumn. Of still rarer occurrence in June. June 22–September 21.

On September 6, 1880, I killed a Virginia Rail in the marshes at the mouth of Cambridge River. My setter "Druid" started it from a bed of reeds. It was a young bird fully grown and feathered, but not without patches of the dull black first plumage curiously persistent with this species, but not often even partially retained after the end of August. Unfortunately, the specimen was too badly injured by the shot to be preserved.

On September 21, 1888, I was hunting Snipe, in a downpour of rain, on Moose Point, when my pointer "Don" found and pointed a Virginia Rail which I flushed and shot. Like the other, this bird was

immature, but, unlike it, had fully perfected its first winter plumage. It made an excellent specimen which I still possess.

My third and last opportunity for noting the species in the Umbagog Region happened about half past nine o'clock on the night of June 22, 1909, when, as I was sitting on the deck of a house-boat anchored in Cambridge River at the foot of the rapids just below Abbott's Mill, a male Virginia Rail began uttering his familiar *cut, cut, cutta, cutta* song-notes. They came almost ceaselessly, for half-an-hour or more, from not far off to the westward where the water had receded from the grassy river banks in places, although the bordering marshes remained completely submerged. Being forced to leave the place early the next morning, I had no opportunity of ascertaining whether or not he remained there to breed. That he may have done so seems not improbable. Less likely is it, in my opinion, that the two young birds killed in September were reared anywhere about the Lake. Indeed I am much more inclined to believe that they were passing migrants which had come from some rather distant breeding ground, perhaps lying still further northward.

Porzana carolina (Linné).

Carolina Rail. Sora.

Common transient visitor in autumn; occasional summer resident.
June 16–October 30.

Soras migrating southward from summer haunts lying further to the northward begin to arrive in the Umbagog Region soon after the end of August, the earliest date of their autumnal arrival furnished by my notes being September 4. During the remainder of the latter month they occur commonly enough, whenever the marshes about the Lake are neither too wet nor too dry to afford them food and shelter. Of the two extremes they seem to prefer the former, for although invariably absent from the marshes when the Lake falls sufficiently low to drain them thoroughly, they sometimes remain in them after the water has overspread them rather deeply. Thus on the evening of September 24, 1889, I heard several Soras calling to one another at sunset in the Moose Point marsh, although it was then so completely submerged (to a depth of from two to three feet, according to my notes) that they could not have obtained foothold anywhere save by clinging to the stems of grasses projecting only a foot or two above the flood. There are autumns, however, when incessant heavy rains raise the waters

of the Lake above even the tallest vegetation in its bordering marshes. Then, of course, the Soras must go elsewhere. Most of them flight further southward, but a few may merely remove to the sedgy margins of nearby ponds or brooks. On September 18, 1873, I came upon one crouching under a log in dense forest on the banks of Cambridge River, a mile or more above Abbott's Mill. This, however, happened during clear, warm weather and when the marshes at the mouth of the Cambridge were not inundated.

Carolina Rails do not visit the Umbagog Region in very great numbers, even when their favorite feeding grounds are in the best possible condition. My dogs — always eager to trail and point them — seldom found more than three or four in the course of any one day; nor have I ever heard more than half a dozen calling during a single evening. They used to occur most plentifully about the middle of September, and were not often met with after the close of that month. My latest record is that of a bird which I shot in the Cambridge River marshes on October 30, 1884, and the next latest that of one taken in the same locality on October 20, 1882. The latter bird was preserved as a specimen by Mr. C. F. Batchelder, who found in its stomach four pellets of no. 10 shot which the Sora must have picked up and swallowed — possibly weeks or even months before, for they were much corroded.

The unseen Carolina Rails heard in the flooded marsh at Moose Point on the evening of September 24, 1889, were perhaps paddling about among the grass, like so many little Ducks, for they are by no means averse to such practice, whenever it cannot well be avoided. Sometimes they may be seen swimming quickly and rather gracefully across open water too deep to be waded. Nor are they unknown to seek refuge beneath its surface when wounded and hard pressed. An instance of this is reported as follows in my Umbagog journal: —

1889, September 19.— A young Sora, shot at on wing, fell into the Lake about twenty feet from shore, where the water was perhaps a foot in depth. As I waded out towards the bird, it dove with the agility of a wounded Duck, and swam under water for a distance of several yards, keeping close to the bottom, and using its wings vigorously and incessantly as a means of propulsion. After remaining under nearly half a minute, it came to the surface and floated with half-opened wings, apparently much exhausted. A moment later it went down again and apparently tried to get and retain a hold on the bottom with bill or feet, keeping in one spot as long as it could, and so stirring up the mud that the roil finally obscured and concealed it. As I afterwards ascertained, it had received a body-wound, but its wings were uninjured.

Soras flushed in the marshes by day, whether by men or dogs, are accustomed to rise almost under foot, to fly very slowly with feeble wing-beats and dangling legs, and to realight after going only a few rods. In dark, rainy weather, however, they will sometimes start far in advance of the sportsman and skim low over the marsh for hundreds of yards, quite as swiftly as Snipe, beating their wings vigorously and rapidly, and carrying their legs extended out behind close under the tail. At the end of such a flight the bird is likely to pitch down suddenly, without first appreciably checking its speed, while it may turn over on its side, with one wing pointing upward and the other downward, just as it disappears in the grass. These low, swift, protracted flights are not infrequently performed in the early morning or late evening by Soras which seem to be roving about in search of fresh feeding grounds. Occasionally I have seen a bird, which may have been about to start southward on migration, flying in the evening twilight in much this same manner, but high above the marsh, and in wide circles, looking like a miniature Duck as it shot across the glowing western sky, on rapidly-vibrating wings.

On June 16, 1880, the plaintive *èr-e* song-notes of a Carolina Rail came plainly to my ears from a bed of meadow-grass on the banks of Cambridge River, about half a mile below Abbott's Mill. The next day I put my setter "Druid" into the grass, where he quickly flushed a Sora which flew off "very swiftly, with legs drawn up and wings whirring like a Quail's," according to my notes. Two birds were heard in the same place on the 23d of the month, one singing, the other calling. I thought then, and believe still, that they were a mated pair, settled for the summer and breeding or preparing to breed, but no nest could be found. The spring freshet subsided unusually early that year. Ordinarily the river-banks, as well as marshes everywhere within reach of the overflow from the Lake, continue under water almost, if not quite, to the end of June. Were it not for this, Carolina Rails would perhaps breed regularly and commonly near the mouth of the Cambridge, and also about the outlet. Why they fail to do so above the forks of the Cambridge in B Meadows is difficult to understand, for here are hundreds of acres of flat, open, grassy land, free from flood-water and tenanted by pumping Bitterns, not long after the close of May. In these Meadows, however, no Rail of any kind has ever appeared or called within my sight or hearing, at any season. Nor have I seen or heard one elsewhere in the Umbagog Region in spring or early summer, except on the few occasions above noted.

Fulica americana americana Gmelin.

Coot.

Rare transient visitor in autumn.
September 15–October 12.

My records of the occurrence of the Coot in the Umbagog Region are only four in number. The first relates to a bird which George King, a well-known Bethel sportsman, shot at the mouth of Cambridge River on October 12, 1882; the second, to an immature female that I met with in the same place on October 11, 1884, and killed just as it rose on wing from the margin of the River; the third, to a female also immature, which my friend James C. Melvin found swimming among partly submerged grass in the Moose Point marsh, and bagged on the evening of September 15, 1898; the fourth, to a bird which I saw in the same marsh on the evening of September 24, 1898, and could easily have killed, but did not fire at, although it offered a tempting shot as it started from the flooded grass close to my boat and fluttered off half-running and half-flying, over a space of open water. The specimen taken in 1884 and that obtained in 1898 were preserved and I have them still.

In many another region a body of water so shallow, muddy, reed-margined, marsh-girdled, and extensive as Lake Umbagog would be certain to attract Coots in considerable numbers at the right seasons. Why this Lake should be visited so rarely by these birds is difficult to comprehend, unless we may assume that it lies remote from any pathway of migration which they often traverse.

The following Publications of the Museum of Comparative Zoölogy are in preparation:—

Reports on the Results of Dredging Operations in 1877, 1878, 1879, and 1880, in charge of Alexander Agassiz, by the U. S. Coast Survey Steamer "Blake," as follows:—

A. MILNE EDWARDS and E. L. BOUVIER. The Crustacea of the "Blake."
A. E. VERRILL. The Alcyonaria of the "Blake."

Reports on the Results of the Expedition of 1891 of the U. S. Fish Commission Steamer "Albatross," Lieutenant Commander Z. L. Tanner, U. S. N., Commanding, in charge of Alexander Agassiz, as follows:—

K. BRANDT. The Sagittae.
K. BRANDT. The Thalassicolae.
O. CARLGREN. The Actinarians.
W. R. COE. The Nemerteans.
REINHARD DOHRN. The Eyes of Deep-Sea Crustacea.
H. J. HANSEN. The Cirripeds.
H. J. HANSEN. The Schizopods.
W. A. HERDMAN. The Ascidians.
S. J. HICKSON. The Antipathids.
P. SCHIEMENZ. The Pteropods and Heteropods.
THEO. STUDER. The Alcyonarians.
H. B. WARD. The Sipunculids.

Reports on the Scientific Results of the Expedition to the Tropical Pacific, in charge of Alexander Agassiz on the U. S. Fish Commission Steamer, "Albatross," from August, 1899, to March, 1900, Commander Jefferson F. Moser, U. S. N., Commanding, as follows:—

—— The Volcanic Rocks.
—— The Coralliferous Limestones.
G. W. MÜLLER. The Ostracods.
MARY J. RATHBUN. The Crustacea Decapoda.
G. O. SARS. The Copepods.
L. STEJNEGER. The Reptiles.
T. W. VAUGHAN. The Corals, Recent and Fossil.

PUBLICATIONS

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY

AT HARVARD COLLEGE.

There have been published of the BULLETIN Vols. I. to LIV., LVI., and LVIII. to LXIV.; of the MEMOIRS, Vols. I. to XLII., and also XLIV. to XLVI., and XLVIII.

Vols. LV., LVII. and LXV. of the BULLETIN, and Vols. XLIII., XLVII. and XLIX. of the MEMOIRS, are now in course of publication.

The BULLETIN and MEMOIRS are devoted to the publication of original work by the Officers of the Museum, of investigations carried on by students and others in the different Laboratories of Natural History, and of work by specialists based upon the Museum Collections and Explorations.

The following publications are in preparation:—

Reports on the Results of Dredging Operations from 1877 to 1880, in charge of Alexander Agassiz, by the U. S. Coast Survey Steamer "Blake," Lieut. Commander C. D. Sigsbee, U. S. N., and Commander J. R. Bartlett, U. S. N., commanding.

Reports on the Results of the Expedition of 1891 of the U. S. Fish Commission Steamer "Albatross," Lieut. Commander Z. L. Tanner, U. S. N., commanding, in charge of Alexander Agassiz.

Reports on the Scientific Results of the Expedition to the Tropical Pacific, in charge of Alexander Agassiz, on the U. S. Fish Commission Steamer "Albatross," from August, 1899, to March, 1900, Commander Jefferson F. Moser, U. S. N., commanding.

Reports on the Scientific Results of the Expedition to the Eastern Tropical Pacific, in charge of Alexander Agassiz, on the U. S. Fish Commission Steamer "Albatross," from October, 1904, to April, 1905, Lieut. Commander L. M. Garrett, U. S. N., commanding.

These publications are issued in numbers at irregular intervals. Each number of the Bulletin and of the Memoirs is sold separately. A price list of the publications of the Museum will be sent on application to the Director of the Museum of Comparative Zoölogy, Cambridge, Mass.

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Bulletin of the Museum of Comparative Zoölogy
AT HARVARD COLLEGE.
VOL. LXVI. PART 2.

THE BIRDS OF THE LAKE UMBAGOG REGION OF MAINE.

BY WILLIAM BREWSTER.

CAMBRIDGE, MASS., U. S. A.:
PRINTED FOR THE MUSEUM.
FEBRUARY, 1925.

REPORTS ON THE SCIENTIFIC RESULTS OF THE EXPEDITION TO THE EASTERN TROPICAL PACIFIC, IN CHARGE OF ALEXANDER AGASSIZ, BY THE U. S. FISH COMMISSION STEAMER "ALBATROSS," FROM OCTOBER, 1904, TO MARCH, 1905, LIEUTENANT COMMANDER L. M. GARRETT, U. S. N., COMMANDING, IN PREPARATION:—

R. P. BIGELOW. The Stomatopods.
O. CARLGREN. The Actinaria.
W. R. COE. The Nemerteans.
H. J. HANSEN. The Cirripeds.
W. E. HOYLE. The Cephalopods.
P. KRUMBACH. The Sagittae.
G. W. MÜLLER. The Ostracods.
MARY J. RATHBUN. The Crustacea Decapoda.
G. O. SARS. The Copepods.
—— Pteropods, Heteropods.

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The Birds of the Lake Umbagog Region of Maine.

By William Brewster.

CONTENTS.

	PAGE
Phalaropus fulicarius (Linné). Red Phalarope	215
Lobipes lobatus (Linné). Northern Phalarope	218
Steganopus tricolor Vieillot. Wilson's Phalarope	221
Rubicola minor (Gmelin). Woodcock	222
Capella gallinago delicata (Ord). Wilson's Snipe	232
Limnodromus griseus griseus (Gmelin). Red-breasted Snipe	240
Calidris canutus rufus (Wilson). Knot	241
Pisobia maculata (Vieillot). Pectoral Sandpiper	242
fuscicollis (Vieillot). White-rumped Sandpiper	244
bairdi (Coues). Baird's Sandpiper	246
minutilla (Vieillot). Least Sandpiper	249
Pelidna alpina pacifica (Coues). Red-backed Sandpiper	250
Ereunetes pusillus (Linné). Semipalmated Sandpiper	252
Crocethia alba (Pallas). Sanderling	253
Totanus melanoleucus (Gmelin). Greater Yellow-legs	255
flavipes Gmelin. Yellow-legs	259
Tringa solitaria solitaria Wilson. Solitary Sandpiper	260
Catoptrophorus semipalmatus semipalmatus (Gmelin). Willet	264
Machetes pugnax (Linné). Ruff	264
Actitis macularia (Linné). Spotted Sandpiper	265
Phaeopus hudsonicus (Latham). Hudsonian Curlew	267
borealis (J. R. Forster). Eskimo Curlew	267
Squatarola squatarola cynosurae Thayer & Bangs. Black-bellied Plover	268
Pluvialis dominica dominica (Müller). Golden Plover	269
Oxyechus vociferus vociferus (Linné). Killdeer Plover	273
Charadrius semipalmatus (Bonaparte). Semipalmated Plover	273
Arenaria interpres morinella (Linné). Ruddy Turnstone	275
Canachites canadensis canace (Linné). Canadian Spruce Grouse	276
Bonasa umbellus togata (Linné). Canadian Ruffed Grouse	286
Ectopistes canadensis (Linné). Passenger Pigeon	306
Zenaidura macroura carolinensis (Linné). Mourning Dove	310
Circus cyaneus hudsonius (Linné). Marsh Hawk	310
Accipiter velox (Wilson). Sharp-shinned Hawk	315
cooperi (Bonaparte). Cooper's Hawk	318
Astur gentilis atricapillus (Wilson). Goshawk	321

Buteo borealis borealis (Gmelin). Red-tailed Hawk 325
lineatus lineatus (Gmelin). Red-shouldered Hawk . . . 326
platypterus platypterus (Vieillot). Broad-winged Hawk . . 328
lagopus sancti-johannis (Gmelin). Rough-legged Hawk . . 332
Aquila chrysaetos canadensis (Linné). Golden Eagle 333
Haliaeetus leucocephalus leucocephalus (Linné). Bald Eagle . . 340
Rhynchodon peregrinus anatum (Bonaparte). Duck Hawk . . . 349
Tinnunculus columbarius columbarius (Linné). Pigeon Hawk . . 355
Cerchneis sparveria sparveria (Linné). Sparrow Hawk . . . 362
Pandion haliaetus carolinensis (Gmelin). Fish Hawk 364
Asio otus wilsonianus (Lesson). Long-eared Owl 367
flammeus flammeus (Pontoppidan). Short-eared Owl . . . 371
Strix varia varia Barton. Barred Owl 374
Cryptoglaux funerea richardsoni (Bonaparte). Richardson's Owl . . 377
acadica acadica (Gmelin). Acadian Owl 378
Otus asio asio (Linné). Screech Owl 384
Bubo virginianus virginianus (Gmelin). Great Horned Owl . . . 384
Nyctea nyctea (Linné). Snowy Owl 398
Surnia ulula caparoch (Müller). Hawk Owl 398

PHALAROPODIDAE.

Phalaropus fulicarius (Linné).

RED PHALAROPE.

Not uncommon transient visitor in autumn.
September 15–October 6.

For obvious reasons Phalaropes seem anomalous and peculiarly interesting birds, whether they be critically regarded after death, or studied when living and in their chosen haunts. They are so like Sandpipers in general appearance and in manner of flight that, however often such an experience may happen, one never quite ceases to be surprised at seeing them swimming in deep, rough water far out to sea or near the middle of some broad inland lake. Although this is their customary habit, they sometimes resort to marshes or mud-flats, and there ramble about freely in search of food, perhaps mingling with some of the smaller Sandpipers which they resemble so closely, if only superficially. Of their extraordinary marital customs and relations this is not the place to treat, since no one of the three species is known to breed in or near the Umbagog Region. All three visit it during migration; the Red Phalarope appearing not uncommonly in autumn; the Northern Phalarope coming rather frequently in autumn and occasionally in spring; Wilson's Phalarope occurring at both seasons, but only very rarely. There are numerous passages in my journal and note-books relating to Red and Northern Phalaropes, observed in and about the Lake. Some of these are trivial in character, but many seem to possess sufficient interest and variety to be worth transcribing in full, essentially as they were originally written. From those which concern the Red Phalarope the following may be selected:—

1880, SEPTEMBER 15.— A violent northeast rain-storm raged all day forcing large numbers of migrating water-fowl and Waders to seek food or shelter in the Cambridge River marshes. Among those assembled on a mud-flat at the river's mouth were four Phalaropes — very tame and interesting to watch. As they ran along the edge of the mud, now turning towards me their beautifully mottled backs, next their snow-white breasts, they constantly nodded their heads, with a Coot-like motion, while their slender necks were never for an instant at rest. All their movements were exceedingly rapid and so erratic that they reminded me of those of excited ants. As my guide, Alva Coolidge, said, they "acted as if they were crazy." Occasionally one would take to the

water and, after swimming out a few yards from the shore, turn over almost on its back to preen the plumage of its sides and under parts, much as does the Little Auk. At length I got two together and fired, killing both, one proving to be a Red Phalarope, the other a Northern Phalarope, although I had not noticed that they differed when alive. The remaining two were Red Phalaropes. Startled by the report of the gun, they rose, and joining a swarm of Semipalmated Sandpipers which had been similarly disturbed, coursed to and fro over the marshes, flying no less swiftly and deviously than their companions and uttering an emphatic *zip, zip,* closely resembling that of Bonaparte's Sandpipers. While in the air they looked almost as white as Sanderling, and the white bars on their wings showed rather conspicuously. When at length they returned to the mud-flats I shot them both. Like the other two birds they had dark hazel irides and, in their stomachs, many small mud-worms.

1887, September 29.—In the North Arm of the Lake, well out from shore off the entrance to Sunday Cove, we noticed, this morning, a whitish, long-necked bird which, at a distance, looked like a Horned Grebe. On getting nearer we saw that it was a Red Phalarope. Swimming briskly to and fro, nodding its head quickly at each foot-stroke, and sifting the water through its bill, or at least seeming to do so, it paid no apparent heed to the final close approach of our canoe. After watching it awhile I killed it with a light charge. The day was clear, calm, and warm; there had been dense fog in the early morning.

1888, October 2.— Seeing two Phalaropes alight, this morning, in the flooded marsh at the Outlet, I entered it with a boat and came upon them in a bed of half-submerged grass where they were swimming about very actively and gracefully, apparently picking food of some kind from the grass-stalks, and displaying a surprising length of neck as they reached up to do so. Both proved to be Red Phalaropes. The morning was cloudy and cold; the Lake glassy calm. Four days after this, (October 6), I met with another Red Phalarope in the same marsh and shot it. By turns it was swimming in the water, and running about over a raft of floating vegetation not far from several Pectoral Sandpipers.

1889, September 22.— As this day was cold and blustering we spent it down the Androscoggin River, where the dense forest afforded us some shelter from the raging northwest wind. In the shallow, muddy lagoon that winds back from the River through Sweat's Meadow we found, and shot, two Red Phalaropes — after watching them a long time. Keeping close together in open water, but very near the edge of bordering grassy marsh, they swam hither and thither in zig-zag courses, every now and then turning over on their sides to dress their plumage. Once they rose and flew about over the pond precisely like small Sandpipers, one of them uttering a Peep-like *tweet* just as it left the water. They were exceedingly tame, taking indeed, not the slightest apparent notice of us even when, as once happened, our boat was within twenty feet of them. On skinning and dissecting them I ascertained that their stomachs contained sand and numerous fragments of small beetles. Similar insect remains filled the stomach of another Red Phalarope which we found lying dead, two

days later, on the surface of a pool among the grass in the marshes at the Outlet, where some gunner may have shot and left it.

1896, October 2.— As I was entering Cambridge River from the Lake, early this morning, three birds appeared high in air above the neighbouring marshes, uttering now and then, a call somewhat like that of Bonaparte's Sandpiper, but louder and mellower. They also made an odd, purring sound, wholly unfamiliar to me. About an hour later they reappeared and alighted not far from me among some lily-pads, near the middle of a large lagoon, when I saw that they were Red Phalaropes. Remaining in the water scarce more than a minute they rose on wing and swung past me within close range, but when I pulled trigger on them the gun missed fire and they escaped unharmed, to be seen no more.

1896, October 5.— On the way from the Lake to Bethel to-day we stopped for dinner at Poplar Tavern, Newry. While it was preparing I strolled across a suspension foot-bridge that spans Bear River here, a shallow stream rippling over a rocky bed scarce fifty feet in width, beneath overhanging yellow birches and other deciduous trees. Returning a few minutes later I had reached the middle of the bridge when a greyish bird started directly under it and flew off down stream for a few rods, skimming close to the water and uttering a sharp *whit, whit* which reminded me of the call of a Spotted Sandpiper concerned for the safety of its young. Almost at the first glance I recognized the bird as a Red Phalarope whose presence in such a place surprised me greatly, of course. Alighting, again, in the middle of the River it floated buoyantly and stemmed the swift current with apparent ease, although avoiding such exertion, whenever possible, by taking advantage of backward-flowing eddies. Presently it began working around the bases of some large boulders where it seemed to be obtaining abundant food by pecking rapidly and incessantly at their rough flanks, wetted by lapping waves. It also fed on the surface of the swirling eddies, paddling about very rapidly and in devious courses. It was most interesting to see a bird whose characteristic haunts, at least in autumn and winter, are boundless stretches of wind-swept ocean, thus disporting itself in a brawling mountain stream overarched by trees. Even a Water Ousel could not have appeared more perfectly at home there. Like most Phalaropes this one was tame and confiding, but whenever I approached within twenty or twenty-five feet, it would rise and fly on a few yards, giving the *whit* call. Finally I shot it with a 32 calibre collecting pistol. It drifted down stream an eighth of a mile before I got a chance to reach out and draw it in with a long pole.

Besides the records given above and others equally authenticated, but of lesser interest, I have several that relate to Phalaropes thought to have belonged to the species that we are now considering, but not positively identified. As three or four of these birds were seen at unusual times or places, or behaving somewhat oddly, I shall mention them briefly here despite the slight uncertainty that exists respecting their specific identity.

1889, October 3.— A Phalarope which I took to be a Red one appeared over the middle of the Lake to-day. After flying about in an aimless way for some time it rose high into the air and, as far as I could make out, left the Lake region altogether, going off over one of the mountain tops to the southward.

My guide, James Bernier, saw a Phalarope swimming near the middle of Bottle Brook Pond this forenoon, and watched it closely for sometime while I was otherwise engaged. Unfortunately it disappeared before I rejoined him. His description inclines me to believe that it must have been a Red Phalarope. That a Phalarope of any kind should have visited a forest-pool so small and secluded is somewhat surprising.

1890, October 13.— While pursuing Scoters about the Lake this morning, James C. Melvin and I saw a Phalarope in the Tyler Cove and followed it in our boats for upwards of a mile. It was very restless, alighting but for a moment, and then flitting on for a hundred yards or more before pitching down again. When on wing it kept uttering a single sharp, shrill, whistling *zeep*. I took it to be a Red Phalarope. Two similar-looking birds were afterwards seen in the same Cove by Melvin. This is an exceptionally late date for Phalaropes of any species to occur here.

1896, August 31.— A Phalarope was flying over the Lake to-day off the mouth of B Brook Cove. It alighted in the water frequently, but did not once remain there more than eight or ten seconds. If, as I thought, it was a *P. falicarius*, the date of its occurrence was earlier by some two weeks than that of any other bird of the kind that I have ever noted in the Umbagog Region.

Lobipes lobatus (Linné).

Northern Phalarope.

Transient visitor; occurring rarely in spring, more commonly while migrating southward in late summer and early autumn.

May 20; August 22–September 22.

In the Umbagog Region I have met with Northern Phalaropes only at Lake Umbagog where they haunt, for the most part, wide reaches of comparatively deep and perfectly open water, seldom approaching the shores very closely and never, it would seem, visiting any of the neighbouring marsh- or forest-encircled ponds, lagoons, or river-reaches to which the Red Phalarope sometimes resorts. My only spring record relates to two males in full-nuptial plumage which I found swimming in the Lake, about two hundred yards from shore off the mouth of Sunday Cove, on May 20, 1881. Here they were feeding on the surface of water forty or fifty feet in depth and advancing over it after their usual fashion, in zig-zag lines and with what seemed to be

almost frantic haste, yet very gracefully, nodding their heads prettily at each stroke of their feet, and swinging their long, slender necks quickly from side to side as they dipped their needle-like bills into the water. After progressing a few rods they would rise on wing and fly back to glean over the same spot again, evidently finding more food there than elsewhere. As I sat watching them from my boat, floating scarce fifteen yards away, they took no apparent notice of my presence. At length I shot one in the water and the other as it started to fly. On skinning and dissecting them I found that they were in good condition, but not fat; that their stomachs were filled with partly-digested and wholly unrecognizable animal matter; and that their testes were well developed. They had dark hazel irides, black bills, and dull blue tarsi and feet.

My records of Northern Phalaropes noted at Lake Umbagog in summer and autumn are, perhaps, not too numerous or voluminous to be given in full and as follows:—

1874, August 22.— While coming down the Lake in the steamer this afternoon I saw, between the Outlet and the Narrows, several Northern Phalaropes widely scattered, and flying about singly. Their manner of flight was very like that of Sanderling which they also resembled in shape and colouring, although appreciably smaller. They alighted rather frequently, although the wind was blowing half a gale and the waves were rolling high. One bird came within a few yards of the boat. Just as it was passing us it turned sharply upwards after a small moth which it pursued eagerly for a considerable distance, but failed to capture.

1880, September 15.— In notes relating to the Red Phalarope I have already stated that three birds of that species, found feeding at this date along the edge of a mud-flat at the mouth of the Cambridge River, were accompanied by a single Northern Phalarope which I shot. This bird, a young female, is preserved in my collection. On no other occasion have I ever seen a Northern Phalarope anywhere about the shores of the Lake.

1887, September 4.— Leaving the steamer at Moll's Rock this morning I embarked in my Rob Roy canoe, and hoisting her sail, ran out into the Lake before a strong, steady, northwest wind. About half a mile from the Outlet I came upon three Northern Phalaropes bobbing like corks, in rough water near the middle of the Lake, and shot two of them, the third flying off down wind. Keeping on in that direction I soon began to see others singly or in twos and threes, and once five were seen together. All were very restless, and some unmistakably shy, rising one hundred yards or more ahead of me to skim low over the Lake for a considerable distance before realighting. For the most part they flew swiftly and somewhat deviously like Sandpipers, but every now and then one would rise abruptly to a height of fifteen or twenty feet, and poise there for a moment, beating its wings and shaking its tail in a violent and

peculiar manner. The only note I heard them utter was a short *quet* very like that of the Sanderling. When in the water they darted about in their customary and erratic fashion, evidently gleaning food from the surface as they swam. In all I must have seen at least a dozen birds. Of the four I killed for specimens two were males, and two females.

1888, September 7.— While crossing the North Arm of the Lake I saw three Phalaropes, all apparently Northern, skimming low over the water, and occasionally alighting on its calm surface which shone like that of a mirror, in the bright sunlight.

1888, September 22.— Two Phalaropes which I took to be Northern were flying about over the middle of the Lake not far from the Outlet this forenoon. Another was seen in the afternoon.

1898, August 23.— When on my way up the Lake in the steamer this morning, I saw a Northern Phalarope in the water, off Black Island. As it did not fly until the boat was rather close upon it I had a good view of it and identified it very satisfactorily.

1898, September 8.— While sailing in a canoe off Pine Point this forenoon I had a Northern Phalarope in sight for sometime. It was exceedingly restless, making frequent short flights from place to place, and never remaining more than a few minutes at a time in the water where it tossed about like a cork on the white-capped waves. It showed no fear of me however, even when I sailed past it within fifteen feet. Once I saw it fly straight up from the water in pursuit of a rather large flying insect which it caught very adroitly. Immediately after this it returned to the exact spot whence it had risen and realighted there. It called *quet, quet,* whenever it rose on wing.

1898, September 9.— As William Stone and I were rowing down the Lake today we saw two Phalaropes. One was on wing and so far away that we could not identify it positively, but it looked so large and light-coloured that we thought it must be a Red Phalarope. The other, a young Northern Phalarope, remained in the water, apparently quite oblivious of our presence, for several minutes after we had cautiously approached in the boat to within twenty feet of it, thus giving us an excellent opportunity to watch it closely through our glasses. It was behaving in a singular manner, turning around and around dozens of times in quick succession on the same spot and in the same direction, thrusting its bill deep into the water twice or thrice at each revolution, and thereby evidently obtaining abundant food too inconspicuous to be discernible by our eyes. At length it appeared to notice us for the first time, and stretching up its neck uttered twice a low but distinct *scaipe,* almost exactly like the flight-call of Wilson's Snipe. A moment later it rose on wing giving the usual Sanderling-like *quet, quet* cry as it left the water. Alighting again, about one hundred yards off, it began fluttering about in circles, now narrowly clearing the water for a yard or two, next hitting against or skittering over the surface, acting indeed, for all the world like some enfeebled butterfly or clumsy moth, alternately attracted and repelled by a forest-pool lying in deep shadow. This singular performance was occasionally varied by more

pronounced upward flights, extending to a height of several feet, and apparently undertaken in pursuit of flying insects, passing overhead.

"If" thought I, while making some of the observations just reported, "there be among all the birds that inhabit or visit New England one other so given to strange and erratic behaviour as is the Northern Phalarope I certainly have failed to become acquainted with it." Nor has subsequent experience familiarized me with another whose characteristic actions seem equally remarkable and unaccountable.

Steganopus tricolor Vieillot.

WILSON'S PHALAROPE.

Rare transient visitor in May and late August.

In the afternoon of August 28, 1873, a clear and very perfect summer day, I was shooting in the marshes near the mouth of Cambridge River with the late Charles F. Barstow of Boston, when our attention was drawn to a flock of four Phalaropes which alighted for a moment in the middle of the River, and then flew close past us with exceeding speed, twisting and doubling like Snipe. We both fired at them, but missed. I thought then, and believe still, that they were Wilson's Phalaropes, a species with which I was not then wholly unacquainted, having met with it living, on a previous occasion, at Rye Beach, New Hampshire. Nevertheless the old-time name *Phalaropus wilsonii*, under which the four birds just mentioned are alluded to in my journal, is therein followed by a question mark as, of course, it should have been, for their identification cannot be regarded as altogether free from doubt.

Fortunately there is but little, if any, similar uncertainty concerning the specific identity of a bird which I found at the foot of Richardson Lake on the morning of May 20, 1881, and recognized almost at a glance, as a Wilson's Phalarope. When first seen it was within gunshot of me, swimming among some driftwood at the edge of a mudflat in Rapid River, only a few rods above Middle Dam. Having my gun in hand I could have killed it easily enough, but being provided only with cartridges loaded with No. 4 shot, I did not like to risk mutilating it by the use of one of them, so stood looking down on it from the top of a bank, intending to return presently to the camp near at hand for a supply of ammunition less likely to ruin the coveted specimen. Before I could carry this intention into effect, however, the bird was disturbed by river-drivers, who were "sluicing" logs

through the dam, and flew off out of sight over the Lake. As it passed somewhat below me, it showed, distinctly, the rich, chestnut-red, dorsal markings which are so conspicuously characteristic of the female Wilson's Phalarope when in full-nuptial plumage. Hence my conviction that it could not well have been anything other than a bird of that sex and species, in precisely that condition. Assuming this to be granted there will remain, perhaps, some objection to the record because it is based on a bird that was met with at Richardson Lake, which lies somewhat outside the limits of the Umbagog Region as they have been fixed for the purpose of the present work. Such an objection would fail to appeal to me, however, for I maintain that all purely arbitrary boundaries, established merely for convenience, should be regarded as more or less flexible. Moreover, Middle Dam is only some three miles from Lake Umbagog in an air-line, and a Phalarope could traverse that distance on wing in almost as many minutes, although it must be admitted that the one I saw was heading in a directly opposite direction when it became lost to view.

SCOLOPACIDAE.

Rubicola minor (Gmelin).

Woodcock. Massachusetts Woodcock. Brush Snipe.

Locally common summer resident.
May 11–October 29.

Many sportsmen maintain that Woodcock will not often abide where there are no earthworms, an opinion which I am inclined to share. It is said that earthworms are not indigenous to the Umbagog Region, but were taken there by fishermen to serve as bait for Trout. Some think that they were first brought by early white settlers, between 1825 and 1830. Long before that, however, the region was visited by roving white hunters who might have carelessly dropped, or even deliberately planted them, as is sometimes done at the present day, about camping stations near favourite fishing grounds. Hence it is possible that they began to be introduced as early as the beginning of the last century, while Woodcocks perhaps appeared to prey on them not long after they had become numerously established in only a few places. However this may have been, there were both Woodcock and earthworms in plenty throughout the sparsely inhabited farming

country about the southern end of the Lake when, in 1871, I first became acquainted with it. They were also to be found together then, in greater or less abundance, within many a lesser area of brush-grown, alluvial ground, lying more or less remote in the virgin forests to the north and east, where sportsmen or lumbermen had been accustomed to encamp and fish. Elsewhere in the forest one seldom encountered them, except along the margins of shrunken rivers to which they sometimes resorted in dry summers to probe the mud exposed by the falling waters, perhaps in quest of food other than that supplied by earthworms, for to these they do not always restrict their diet, although depending so largely on them.

In these days the birds had comparatively little to fear from gunners, but were much preyed on by cats who often brought them into the farm-houses, especially during the breeding season. To most of the natives of the region they were known as "Brush Snipe," the name Woodcock being very generally applied to the Pileated Woodpecker. Some of the guides and hunters had learned, however, through association with visiting sportsmen and in their presence, to characterize each bird by its rightful name. Others similarly well informed, but more stubbornly inclined in favour of time-honoured, local terminology, compromised the matter rather ingeniously and amusingly by continuing to call the big Woodpeckers "Woodcocks" and adopting for the sportsman's favourite bird the name "Massachusetts Woodcock," probably because so many of the sportsmen whom they knew hailed from our Bay State. No such confused and mongrel nomenclature is widespread now, although it has not wholly ceased to exist.

Being fond of hunting Woodcock, and usually possessed of a well-trained pointer or setter having similar tastes, I used to devote a good deal of time to their pursuit, thereby familiarizing myself with most of their favourite haunts lying within easy reach of Upton, as well as with others somewhat more remote. The best covers were scattered throughout the rudely-tilled farming lands that border the road leading from Upton Hill to Lakeside, and stretch thence down long, steep slopes nearly or quite to the Lake. There were also some excellent ones only a few hundred yards from the old Lake House to the north and east. Throughout all this country Woodcock bred regularly and in places really numerously; some in thickets of tall alders growing on the banks of brooks or along boggy runs fed by cold springs; others in scrubby hollows moistened only by rain water; still others on well-drained knolls covered by second-growth birch or maple woods; others again in hill-pastures covered with widespreading young

spruces and balsams. Contrary to their usual practice elsewhere, both old and young birds commonly remained in or very near the breeding-haunts until they migrated southward in autumn. Towards the end of rainless summers, however, their customary feeding-grounds sometimes became too dry to be longer tenable and were almost completely abandoned, perhaps before the middle of August. What became of the Woodcock at such times we never definitely ascertained, but it was thought that they scattered widely in search of food, for the few we met with were usually found singly in remote or unaccustomed places well back in the forest, and not far from springs or the banks of streams. Curiously enough I never once saw or heard of one in the Cambridge River marshes, although the similarly open and grassy great meadows of Concord, Massachusetts, are often frequented by Woodcock in midsummer, especially during seasons of prolonged drought.

The shooting season began at Lake Umbagog on September 1, and lasted little more than a month, for most of the local birds went southward before October 10, and were seldom afterwards replaced by any others coming from the northward. During the earlier years I was almost the only one who had regular advantage of it, even in the best known covers lying close to the Lake. After taking reasonable toll of these, but leaving in each at least a few birds "for seed," I would range farther, and still farther afield, revisiting familiar places, and every now and then stumbling on some isolated colony of birds of which I had had no previous knowledge, always a delightful and stimulating experience. As a rule I did not go out especially for Woodcock oftener than twice each week, and my bags were not large, seldom exceeding five or six birds in one day, or forty or fifty in the course of a single season. It would have been easy to have killed thrice as many, but having neither need nor desire for more, I followed the sport in a leisurely, intermittent fashion, enjoying it none the less on that account, and apparently causing no permanent depletion anywhere in the number of birds. For although I might leave only one or two in a thicket, which had held six or eight at the beginning of September, the place was sure to be fully restocked when I reëntered it next year. On the opening day, and for at least two weeks later, the leafage in the alder runs was as dense as in midsummer, the ground covered with clustering ferns or rank, wiry bog-grass and the air inclined to be oppressively warm. Thus the conditions were not altogether favourable for man or dog, nor very unlike those under which we used to hunt Woodcock in Massachusetts, during the month of July almost

half a century ago. It was especially difficult to find and kill the birds in the spruce-grown pastures, for there they were much given to running before the dog under low-arching branches whose evergreen foliage remained, to the very last, unthinned by autumnal winds or frost, and was so very stiff and closely imbricated that it often completely hid a rising Woodcock from the sportman's view, or tended to render harmless a shot aimed accurately enough at one dimly seen. The habit of running, instead of squatting, when approached, was also frequently practised by Woodcock found on knolls covered sparsely by trees, under and between which grew brakes in endless ranks, and waist high. Among these the birds would lie close to the dog, but much oftener kept him trailing them by skulking on a few yards in advance, trying his patience sorely and that of his master as well, although when finally flushed, they were likely to offer rather open and easy shots, and hence to be brought to bag. They haunted such covers chiefly in late August and early September, usually deserting them as soon as the bracken was cut down, or withered by the first hard frost. This, perhaps, would serve to drive most of the Woodcock from the entire Umbagog Region for, as I have said, they were accustomed to depart on the annual journey southward rather early, only a very few lingering on there after the leaves had fallen. Although my personal experience has furnished no evidence to indicate that the region is ever visited in autumn by birds migrating from farther north, I am not disposed to deny that this may happen occasionally. Indeed, what seems to have been an almost unmistakable instance of such a flight came under the observation of Alva Coolidge in 1881, when he was acting as guide for Samuel Betton, a Philadelphia sportsman whom I knew. Late in the afternoon of October 4, when it was snowing heavily, and early the next morning, when the weather continued cold, he and Mr. Betton killed a dozen Woodcock, and saw others, on a knoll, less than an acre in extent, and covered with poplars, just behind the old Lake House. As this cover has never been known to harbour anything like so many at any one time before or since, and as the birds behaved like newly arrived "flight" Woodcock, it does not appear probable that they were locally bred. On less good authority, I have heard of two or three other instances, of what may similarly have been migratory incursions from summer haunts, lying considerably farther northward.

Among other outlying grounds regularly tenanted by Woodcock in summer and early autumn, that I used to visit, and shoot over occasionally at the latter season, were several rather far up Cambridge

River; others along the road leading from Upton to Andover, Maine; still others in the valley of the Lower Magalloway; and very many widely scattered through the more open parts of the township of Errol, New Hampshire. I often heard of birds seen in spring near Oxford Club Camp, and Middle Dam on Rapid River, and sometimes, but not often, of a few being killed there in autumn. They have been known to occur casually as far up the Magalloway River as Lake Parmachenee and also on Cupsuptic Carry, according to Alva Coolidge.

Many years ago I expressed in print (Forest and stream, 1 August, 1889, **33**, p. 24), a belief that the whistling sound made by a rising Woodcock is produced by the bird's wings. This conviction has since been confirmed by field-experience at the Lake with Woodcock killed during the first half of September, and in varying conditions of moult. Such of them as still retained, or had just renewed the attenuated outer primaries, almost always whistled when flushed, whereas no sound other than a dull fluttering one was ever heard from any of those not thus equipped. Hence I continue to hold firmly to the opinion that the Woodcock's clear, silvery whistle emanates from these "whistling quills," as sportsmen fitly term them, and not from the bird's throat. There are, however, certain sounds, not very unlike those which combine to form the usual characteristic whistle, but more disconnected and twittering, which may be of vocal origin. One hears them oftenest from Woodcock hovering, just before alighting, or flitting low over the ground for trifling distances, beating their wings rather listlessly. This comparatively slow pulsation of the wings might account for the interrupted sequence of the sounds, but not, perhaps, for their seemingly throaty quality.

Some of the moulting Woodcock, just referred to, were flushed almost under foot and took long flights. Others behaved very differently, rising several rods in advance, flying only a few yards at a time, and running off swiftly, perhaps in open view, immediately after alighting. Occasionally a bird ran so fast and so far that I could not overtake and get it again on wing, although following it as long as the patiently "roading" dog could pick up its foot-scent.

Simetimes when my dog pointed a Woodcock staunchly in thin cover, I would scan the ground ahead of him inch by inch until I saw the bird. It was most likely to be squatting closely among ferns or fallen leaves, although every now and then one might be viewed standing erect and motionless, in the middle of some sunny little opening surrounded by bushes. Once a bird which had just alighted within ten feet of me on a plat of smooth, green turf in a hillside pasture,

ensconced itself snugly in the foot-print of an ox, after running a few steps. I often noticed signs of various kinds, which indicated that Woodcock had been feeding by day in dense thickets, perhaps during bright weather, but it was never my good fortune to see one thus engaged. Possibly I might have done so on the evening of September 25, 1890, had I not been unduly eager to shoot the bird, an uncommonly large one, standing on the margin of a mud-puddle in a cart-path near a house. I flushed it three times in succession, but was unable to follow it with my eye in the dim light, so did not fire at it. After each of its first two departures, it returned within half a minute, and alighted at the edge of the pool, dropping there very abruptly, but as lightly and noiselessly as a big tuft of thistle down. If not too closely pressed it would run in advance of me for several yards, with short, mincing steps, darkly silhouetted all the while against the background of shining water. Once it strutted for a few feet with tail erect and widespread like a tiny, rounded fan. The whistling sound of its wings in rapid flight, seemed to me more silvery and musical than that which we hear by day, although the apparent difference may well have been due to the fact that the air was so breathlessly still.

An observation somewhat similar to that just described, but differing from it in certain respects, was made on the evening of October 18, 1904, by my friend Dr. J. G. Gehring, in second-growth woods, consisting chiefly of tall grey birches, and lying not far from his house at Bethel, Maine. Entering this cover as twilight was falling he heard at least five or six Woodcock rise from it on whistling wings. One of them alighted very near him, and ran and flitted along the margin of a little pond, repeatedly jerking up and fanning out its tail. Presently another came, when the first flew to a neighbouring pool, only a few yards off, and began uttering a peeping cry given by male Woodcock on the ground in spring, during the intervals between their soaring flights. This was once answered by the second bird, which behaved much like the first, excepting it did not either elevate or spread its tail. During my entire field-experience I have heard the *paa-p* but once in autumn, and then it came from a wing-tipped Woodcock which my dog was endeavouring to catch.

I have never been at Lake Umbagog quite early enough in spring to note the arrival of the first Woodcock. According to the local guides and hunters, they seldom, if ever, appear before the first of May, and often are not seen or heard until the 9th or 10th of the month. Even then, they are likely to find the greater part of the

country buried to a depth of a foot or more with snow, and the Lake still thickly encased in ice. But along the courses of swift-flowing brooks, and of trickling runs, fed by springs, there will be more or less extensive areas of bare, muddy ground, already free from frost, and perhaps, also, green with tender young grass. In such places the birds obtain, from the very first, abundant food, and in or very near them the females, without loss of time, prepare their rude nests, and lay their attractively-marked and coloured eggs, while at early morning and late evening the males soar high above the hidden, leafless coverts, flooding the keen air with outbursts of tumultuous song. Thus at the Lake, as well as elsewhere, Woodcock are among the earliest of all birds to breed. Apparently the first eggs must sometimes be deposited only a few days after the appearance of the first birds, for a set of four was found by J. G. Rich on May 10, 1870, according to Mr. Maynard (Proc. Boston soc. nat. hist., 1872, **14**, p. 383). I saw a similarly full clutch in the nest on May 13, 1881, and a female Woodcock that I flushed near the Lake House on June 5, 1872, was accompanied by four young so nearly grown that they looked scarce smaller than their mother, and flew equally well. Yet the Lake had been freed from ice and the woods from snow only three weeks before the latter date.

Nests of the Woodcock are undoubtedly difficult to find, but less so, in my opinion, than is commonly supposed. Although seldom giving much time to looking for them at the Lake, I have seen *in situ* there no less than five containing eggs. My setter "Druid" led the way to one, coming to a steady point on the sitting bird when within three or four yards of her. Another was revealed by the glimpse I happened to get of uncovered, and apparently deserted, eggs. The remaining three might have been passed unnoticed had not the birds risen from them on wing as I approached.

My notes furnish the following details concerning the respective position of these nests and the behaviour of the birds:—

1880, May 17.— I came upon two nests of the Woodcock to-day while searching for them about the Sargent farm in Cambridge, N. H. One, containing four eggs, incubated perhaps as many days, was in the face of a low mound partially overarched by balsam shrubs, surrounded on every side by pools of water, and some eighty yards from the Lake shore near the middle of swampy, second-growth woods made up chiefly of aspen, red cherry, and yellow birch trees, twenty or thirty feet in height, beneath which grew alders rather abundantly. The female Woodcock flew up from her eggs at least fifteen feet in advance of me, and whistling faintly soared off over the tree-tops to be seen no more. I flushed a male about fifty yards from this nest.

The second nest was within one hundred yards of the first on perfectly dry, hard ground at the foot of two or three leafless mountain maples, and just beneath the spreading branches of a little balsam, in an open pasture, or rather one corner of it, where an adjoining coppice had thrown out a scattering fringe of saplings over a steep bank bordering on the Lake and indeed, scarce twenty feet from the water's edge. While hastening through this scanty, outlying thicket, with no thought that it might shelter a Woodcock's nest, I actually stepped within six inches of the bird, before she left her eggs. Rising on wing she flew off across the pasture into a cover beyond, whistling like the other female. Her mate was afterwards started about forty yards from the nest. The four eggs it held were perfectly fresh.

1881, May 13.— Hard by the Lake shore, not far from the steamer landing at Lakeside, "Druid" found and pointed a Woodcock sitting on her eggs this morning. I almost succeeded in stroking her back before she left them, and flew sluggishly, without whistling, for a distance of only twenty feet. Before finding the nest we had started the male about fifty yards from it, when he went directly towards it and alighted within fifteen feet of it. When the female was flushed from it, he rose heavily and upon dropping to the ground again began fluttering over it, simulating the behaviour of a wounded bird, although the female attempted nothing of the kind. The nest was well back in a low-lying, rather swampy thicket of intermingling red spruces, yellow birches, and willows on the top of an earthy mound, partially protected from the weather, and from prying eyes by the overhanging branch of a small spruce. The four eggs it contained lay in a deep saucer-shaped hollow, with a few dry leaves under and close about them. They looked fresh, but I did not disturb them.

1896, May 14.— After spending an hour searching for the nest of a Woodcock heard singing last evening in an upland pasture, not far from Lakeside Hotel, I found it near the lower end of a wet run on a low mound, covered with blueberry bushes, and last year's brakes. Scattered willows, spruces, and balsams grew all about it, but not sufficiently close to prevent it from being fully exposed to the sun. By chance I had halted within eight or ten feet of the mound, and was looking at it idly, without in the least suspecting that it sheltered the very thing I sought, when the female Woodcock, doubtless conscious of my gaze, and probably thinking that she herself was attracting it, rose hurriedly on wing and flew off, thereby exposing her four eggs to view. They were all quite fresh, although two had numerous, faintly-indicated cracks radiating from a common centre, which gave them the appearance of being about to hatch.

1896, May 16.— Last night a Woodcock was heard peeping and singing in a hill-pasture near Lakeside Hotel. Watrous and I looked for the nest this afternoon, following the edge of the woods down from the hilltop. After going rather more than one hundred yards in this direction, we flushed a Woodcock among crowded spruces. Thirty yards farther on, and within sixty feet of the Lake, I came upon the nest. It was at the edge of a little fern-grown opening,

on a mound covered with brakes, flattened and bleached by winter snows, beneath a balsam scarce two feet high, and not dense enough to afford much concealment for the eggs which, indeed, caught my eye when I was fifteen feet away, there being no bird on them. Although only two in number they looked so clean and fresh that we supposed, at the time, that the set was incomplete and would be added to later. This did not happen, however, nor was a Woodcock ever seen about the nest. Hence we finally decided that it must have been abandoned just after, if not before, it was discovered. The mound was within twenty paces of the one on which I found the nest with four eggs in May, 1881.

In the spring of 1880 three nests of the Woodcock containing eggs were found near Middle Dam Camp on Rapid River, but all these were afterwards trampled on and destroyed by cattle. One of the birds sat so closely on her four eggs that she was picked up by a river-driver who took her to the Camp. When liberated shortly afterwards she returned immediately to the nest. This happened on June 3, a late date for unhatched eggs. No doubt they represented a second set, laid after the first had been lost; nor did they escape a similar fate, for the very next day an ox trod in the nest, and broke them all. I had the story from Horatio R. Godwin who saw both bird and nest. In September of that year no less than eighteen Woodcock were killed by sportsmen in the neighbourhood of Middle Dam. So far as I have been able to learn, nothing like so many have ever been found there since.

So much has been written and printed about the song-flights of the Woodcock, that it does not seem desirable to redescribe them here, although a few of the notes relating to them which are contained in my Umbagog journals may be worth giving briefly. Most of the male Woodcock inhabiting covers about the Lake flew from them at morning and evening to peep and sing in the nearest available opening. This might be only a few rods across, and somewhat brush-grown, but often it was a rough, hummocky hill-pasture at least eight or ten acres in extent. However generous such a space, it was not often resorted to by more than one male, and he perhaps would invariably pitch down to peep in almost exactly the same spot, although it did not seem to differ in any way from the turfy surface elsewhere throughout the big, wind-swept pasture. Many peeping stations, thus narrowly circumscribed, were visited regularly, not only night after night, but year after year, also. Some birds, however, showed no preference for any particular alighting place when descending from the upper air, but would settle now here, next there, all over the wide pasture. When the nights were dark the Woodcock peeped and sang

only in the morning and evening twilight, ceasing at the former time before it was broad daylight, at the latter before the afterglow had quite faded from the western sky. But when the moon was near its full, and not obscured by clouds, one might hear them at almost any hour or even through an entire night. Such, at least, was the case when the females were sitting on freshly-laid eggs. Towards the end of May the males sang less and less often, becoming altogether silent, for the most part, by the end of the month or early in June. Many of them seemed better singers than any I have ever met with elsewhere, but this may well have been because of the rarified quality of the air. After listening to an exceptionally full, rich-voiced bird on the evening of May 14, 1896, I wrote in my journal:—

It is surprising that anyone can fail to be impressed by the musical merit of the song of the Woodcock. It does not suffer by comparison with most of the finer bird-songs to be heard in this region, but on the contrary is one of the most delightful of them all.

The manner in which the song-flight was conducted varied only slightly at different times or with different performances. One and all of these were accustomed to first soar spirally to a height of two or three hundred feet, and then descend earthwards by a series of zig-zag swoops made with arrow-like speed, and accompanied by successive outbursts of ecstatic, liquid, gushing song which ended abruptly when the bird finally got within thirty or fifty feet of the ground, and pitched down to it on half-closed wings.

For a month or more after the time when Woodcock hatched their eggs, we saw comparatively little of the old birds, and still less of their young, although every now and then we might stumble on a female and her brood. Such an experience is described as follows in my journal:—

1909, June 20.— Towards evening Frank M. Chapman and I were strolling along a wood-road that leads over the crest of a hill at the rear of the old Lake House in Upton, when we started a large female Woodcock from the edge of the path. After flying only a few yards she alighted, and began beating her wings on the ground at the same time keeping up a low, vibrant mewing not unlike that of a Catbird. This behaviour was evidently intended to draw our attention to her, and from her young, none of which, however, had thus far attracted our notice. As we remained motionless the Woodcock soon ceased fluttering, and instead ran hither and thither, uttering calls very duck-like in character, and closely resembling those heard when numerous Black Ducks are feeding in company, and quacking in subdued, conversational tones. These sounds were interpreted by us as notes of warning to the young, bidding them keep quiet. If they really had such significance it was not disregarded by the only

young bird we succeeded in finding, an exquisitely beautiful little creature no bigger than a Bluebird, and still clothed in down, but with flight-quills already sprouting. Sitting on the ground in the middle of the path with head and neck erect, much in the attitude of a brooding Thrush snugly ensconsed in her nest, it did not perceptibly move, nor even quiver a muscle, as we bent low over it and gazed into its large, liquid eyes. Retiring a short distance we watched it for several minutes, hoping that the mother would go to it which, however, she did not do. When we returned to the place, twenty minutes later, both the old and the young Woodcock had disappeared.

Most of the covers lying near the southern end of the Lake continued to harbour Woodcock in plenty when, at the close of the last century, I ceased to trouble them. Since then the ever-multiplying hordes of sportsmen who have overrun so much of the Umbagog Region, and so dotted the shores of the Lake with their summer cottages and camps, have harried the birds more and more often, killing very many of them, it is said. Nevertheless they may still be as numerous as ever in at least a few of the remoter places where, to the best of my knowledge and belief, no gun other than mine has yet been fired at any of them.

Capella gallinago delicata (Ord.)

Wilson's Snipe. Snipe.

Transient visitor, occurring abundantly in autumn, rarely in spring.
May; August 19–October 31.

It would not surprise me greatly to learn that Wilson's Snipe occasionally breed in remote, boggy places in the Umbagog Region, but no evidence indicating that this ever happens has come to my knowledge. Nor have I ever personally met with the birds in spring, although they are sometimes flushed early in May from wet places in the grass-fields or pastures on Upton Hill, the Lake shores being then, of course, in no condition to harbour them. Migrating, it is to be presumed, from breeding-grounds lying considerably farther northward, they begin to reappear before the close of August, and occur more or less numerously, and continuously through September and October. If the season be exceptionally rainy, or the reverse, only a few are likely to be seen, but when their feeding-grounds are neither too wet nor too dry to be attractive, the birds may be found very plentifully at times, especially in the latter half of September, by those who know just where and how to look for them. Arriving in succes-

sive flights, oftenest at night, but by no means infrequently in the daytime, when the weather is stormy or lowering, they resort most numerously to the broad, wind-swept marshes bordering on or near the Lake. When these are much disturbed by gunners the majority of the Snipe soon learn to shun them by day, but continue to feed in them through the night, retiring before sunrise to more secluded haunts, where they can spend the hours of daylight with less risk of molestation. There are also birds, by no means few in number, who for reasons of their own, prefer at all times to haunt the grassy margins of rivers, brooks, and small ponds lying far back in the forest. Thus it is not unusual to find them almost everywhere throughout the region, in open boggy or marshy places, however remote and narrowly circumscribed. Many of them remain only two or three days before journeying farther southward, to be soon replaced by others coming from farther north, but some linger on week after week in the same haunts, even when frequently shot at. Their behaviour when pursued by sportsmen depends largely, of course, on the character of the weather. If it be rainy, or very windy they are apt to be exceedingly wary and restless, rising far in advance of the dogs, and continuing long on wing; but during calm, sunny days they are comparatively sluggish, nearly always lying close enough to be pointed by a good dog, and to afford his master shots not likely to be wasted, if accurately aimed. The birds fly so very swiftly and deviously, however, that they are not infrequently missed by expert gunners, even when flushed under foot, while inexperienced marksmen often expend much ammunition on them with only trifling success. Two men whom I remember meeting in the marshes at the Outlet, after seeing or hearing them fire upwards of fifty times, had but a single Snipe to show me, when questioned about their bag. Thus the sound of incessant firing on the marshes did not always indicate that much harm was being inflicted on the birds. I rarely permitted myself to shoot more than eight or ten in any one day although once, when over-tempted by an unusually favourable opportunity, I killed eighteen in the course of about two hours.

Some of the more interesting experiences that I have had with Wilson's Snipe in the Umbagog Region are described nearly as follows in journal or note-books:—

1880, September 11.— Entering a part of the Cambridge River marshes much frequented just now by Snipe, I happened to see one close at hand, standing erect and motionless in the middle of a bare space encircled by rushes. A moment later "Shot," galloping past to leeward, got scent of the bird, and

whirling abruptly came instantly to a staunch point. The Snipe, meanwhile, had skulked under a pickerel-weed leaf where it squatted exposed, however, to my view. The graceful game-bird cowering beneath this slight shelter, and the intelligent setter, rigid as a statue, staring with fixed eyes and wrinkled forehead towards the spot whence the hot scent came to his quivering nostrils, while a gentle breeze played with the silky fringe that depended from his tail, combined to form a beautiful tableau at which I gazed admiringly for several minutes, scarce less spellbound than the dog, only half-conscious that an Osprey and some Titlarks were circling overhead, and that a suspicious Great Blue Heron was uttering his hoarse cry every now and then somewhere in the distance. At length the Snipe sprang lightly into the air and darted off in zig-zag flight, the loud report of the gun bellowed over the marsh to be flung echoing back from the forest-wall beyond, the stricken bird fell lifeless into the tall grass and a few of its feathers came floating past me on the wind.

1880, September 15.— About the middle of the forenoon, during a driving northeasterly storm accompanied by heavy and incessant rain, I saw nine Wilson's Snipe come in from the north over the Cambridge River marshes, flying in a bunch like "Bay-birds." After pitching down once or twice almost, but not quite, to the ground they mounted high in air, and went off southward over Upton Hill. It was interesting to watch them thus unmistakably engaged in migration. Four others that appeared shortly afterwards alighted in the marsh.

1880, September 16.— In the marshes near the Outlet several Snipe, hidden in the grass, remained there unseen until I had passed, then rose two or three gunshots behind me. Another bird that I saw in the very middle of a creek seemed to be floating on the surface of water apparently rather deep and quite free from vegetation. It had its head and neck flattened down as if it were squatting on land. After flushing it I waded out to the spot where the water proved to be only about three inches in depth.

1883, October 19.— I shot seven Snipe to-day in the Cambridge River marshes, although our thermometer at the Lake House fell to 12° Fahr. on the morning of the 17th and to 9° yesterday morning. On both days the marshes remained frozen until noon.

1883, October 23.— Near the Outlet I started thirteen Snipe about noon to-day in marshes frozen so hard that they bore my weight without yielding, the thermometer having fallen to 10° last night.

1883, October 25.— A few Snipe continue to linger here despite a snowfall of seven inches that came yesterday. I saw two birds to-day. One was standing erect on a rocky point, on the very edge of the unfrozen Lake, where it showed very conspicuously against a background of spotless snow.

1888, October 6.— While crossing the Moose Point marsh in a boat this forenoon, we flushed three Snipe from a bed of grass everywhere flooded to a depth of a foot or more. It would seem, therefore, that these birds must have been either swimming or clinging to the grass-stems, before we disturbed them.

1890, October 8.— A steady rain that began yesterday afternoon continued

through the greater part of the night, changing, before daybreak, to snow which, by seven o'clock this morning, had covered all exposed surfaces of earth and evergreen forest trees to a depth of about two inches. It kept on falling heavily through the forenoon, but melted as soon as it reached the ground so that its depth there was not increased. The marshes about the Outlet were everywhere buried beneath it, and apparently quite without bird-life of any kind, but in Leonard's Pond we found upwards of forty Wilson's Snipe. Never before in the course of my entire field-experience have I known them behave so strangely. When first disturbed they flew from the edge of the Pond, two hundred yards ahead of our boat, in two flocks, one of which contained not less than thirty birds. After we had followed them about for an hour or so and fired a few shots at them they became somewhat scattered, but during the remainder of the day continued to reassemble in flocks, and to be exceedingly restless and wary, usually rising beyond gun-range, and flying about for some time at a considerable elevation before pitching down to the shores of the Pond again; for to it they always returned, sooner or later. When in flocks they acted precisely like Tringae, coursing back and forth, now high, next low, in compact bunches, finally alighting all together. Throughout the forenoon they fed busily, and without the least restraint, on bare mud along the water's edge. It was most instructive as well as interesting to watch them thus engaged. Often I had a dozen or more in view, perhaps huddled together so closely as they worked over a space only a few feet square that at least half of them could have been killed with a single charge of shot. Once I saw four that a large pocket-handkerchief would have covered, for they were gathered about a little depression, facing one another, with their heads actually touching at times as they probed the soft mud. Every now and then a peculiar, low, purring sound made by one would be similarly and successively taken up or answered by others, until most of the birds in the immediate neighbourhood, if not also some on the other side of the Pond, had given utterance to it. I cannot remember ever hearing this cry before. One had difficulty in deciding whence it came because of its elusive quality, for it was uttered in measured, somewhat drawling tones, so muffled and subdued as to suggest that it must proceed from a throat obstructed by food. Although very unlike the ordinary flight-call *scaipe* it may, perhaps, be essentially a modification of that familiar note.

On first noticing our advancing boat these feeding Snipe commonly ceased probing in the mud and stood erect, watching us intently with upstretched necks, looking not unlike Plover at a distance. A few moments later they were likely to rise all at once, as if at a given signal, long before we got within gun-range. Some birds, however, permitted closer approach. By using extreme care we paddled the boat within twenty feet of one which I watched through a field-glass at this distance for over half an hour. Although feeding ceaselessly all the while, it confined its wanderings to a space only a few yards square, and gave its attention chiefly to three little muddy places, each of which it explored with the utmost thoroughness, often probing the same spot upwards

of one hundred times in succession before taking another forward step. Where the mud was rather hard, and not covered with water, it fed much after the manner of a Sandpiper, rarely driving its bill in more than half an inch and often gleaning morsels of food directly from the surface, bobbing its head up and down incessantly, as does a Sparrow engaged in picking up seeds when they are numerous, and moving it thus so very rapidly that I could not count the number of bobs per minute. Where the mud was softer the bill was thrust in deeper, but rarely to its base, except once when the bird waded out into water up to its belly and probed for several minutes, immersing the entire bill, as well as the head to the eyes, at each downward stab, and occasionally plunging the whole head beneath the surface. The deeper thrusts made here were executed rather slowly, and often with marked deliberation, the bill being kept in the muddy bottom for a full second or more, sometimes motionless, sometimes working slightly up and down or from side to side. When boring in soft mud, not overspread by water, the bird usually inserted the bill with the mandibles one eighth to one quarter of an inch apart at the tips, holding them thus or alternately closing and opening them with a champing motion, while keeping them in the mud, but always bringing them firmly together when the bill was withdrawn. Quite evidently the Snipe know how to obtain abundant food by boring. Rarely did it plunge its bill into the mud more than three or four times without bringing up something which it worked quickly into its mouth and then swallowed. Twice I distinctly saw a small worm, apparently not an earthworm, and only about a quarter of an inch in length, wriggling and wrapping itself about the end of the bird's bill. When, as happened oftenest, no food was exposed to my view, I inferred that it must consist of rather minute morsels. These were probably drawn by suction from the tip of the bill, in which they were certainly first seized, back into the mouth and throat, for the bill was never raised, but invariably pointed downward, just prior to, as well as during, the obvious act of swallowing. During that of boring the bird held it at various angles, sometimes vertically, but oftener directed more or less forward as well as downwards.

While watching this particular Snipe I was much impressed by the attractiveness of its plumage, by the perfection of its rounded outlines, and by the exceeding energy and alertness with which it prosecuted its untiring search for food. The yellowish markings of its back were arranged and displayed in three perfectly straight and rather narrow lines of even width, separated by much darker and broader interspaces, while the light stripes on its head were not less regularly and plainly defined. The tips of its folded wings usually showed just below the tail which was commonly raised slightly above the line of the back, but sometimes depressed, as in conventionally-mounted specimens. The carriage of the body was ordinarily crouching with the back strongly arched, the neck retracted and the head held very low; but every now and then the bird would stand erect for a moment with head thrown well back, resting its long bill on the swelling curvature of its plump breast. I finally shot it, not without reluctance, and carefully examined the contents of its throat and

stomach. In the throat I found nothing but a small flesh-coloured worm, apparently not an earthworm yet not very unlike one. The stomach held a mass of half-digested matter in which the only objects that I identified were very many legs and elytra of small water-beetles. Similar insect remains partly filled the stomachs of several other Snipe killed and dissected to-day.

1893, SEPTEMBER 30.— The Moose Point marsh was plentifully besprinkled to-day with splashes of chalk-white excrement which I attributed at the time to Pectoral Sandpipers, of which we saw many, although it looked like that of Snipe, none of which could be found. But not long after sunset, when lying concealed on the Point watching for Ducks, Snipe began arriving rather numerously, coming singly from various directions and evidently from considerable distances, for when first seen all were very high in air. After circling there once or twice they would shoot down almost vertically on half-closed wings, and alight in the grass. Whenever one thus descending came near us we heard a hissing or whizzing sound not unlike that of a whirling whip-lash and made, we thought, by the bird's stiffly set wings cleaving the still air. These experiences have convinced me that Snipe are now feeding in the Moose Point marsh only by night, and spending the day elsewhere.

1894, SEPTEMBER 12.— Besides numerous Ducks there were countless Wilson's Snipe coming, this evening, to the marshes at the Outlet. They arrived singly, in twos and threes, sometimes as many as six or seven together, usually first appearing at a height of one or two hundred feet, and then pitching down on set wings with a rushing sound, similar to that of descending Scoters and scarcely less loud. When skimming low over the ground before alighting they uttered the familiar *scaipe* call freely, in tones which seemed deeper and hoarser, however, than those employed by day.

1894, SEPTEMBER 21.— In the marshes near the Outlet this evening the air was breathlessly calm and deliciously warm. For half an hour after sunset hundreds of Leopard Frogs croaked unceasingly. Listening with closed eyes to their swelling chorus, it was not difficult to imagine myself in Concord River meadows with an April sun declining towards the west. No other spring-like sounds came to my ears, however, until a Wilson's Snipe drummed directly overhead. Soon afterwards I heard another, and then another, and still another, until they were drumming in every direction and almost incessantly at times. Never before have I noted so many thus engaged in autumn. The marshes seemed fairly alive with them, for in addition to the drumming birds there were dozens, if not scores of others, more or less plainly seen when they darted hither and thither across the rosy afterglow in the western sky. As they pitched down to the marsh in the usual headlong fashion, their half-closed wings made a rushing noise so very like that produced by those of swiftly descending Ducks, that I failed to notice any essential difference. When they were merely flitting from one muddy spot to the next, only a few yards off and equally near my hiding place in tall grass, I often heard a crisp, rustling sound, also, without doubt, made by their wings, and closely resembling that of some stiff silk fabric, roughly shaken. Although not loud, it was distinctly audible

at a distance of several rods. The *scaipe* cry was given only by Snipe on wing. Those feeding numerously in the marsh were keeping up a constant calling to one another, but uttering a low, penetrating *kup, kr-r-r-uck* very like that of the Florida Gallinule. These notes seemed unfamiliar to me, although I may have heard and identified them before. They varied a good deal, both in form and tone. Sometimes there was only a single note which resembled the *kep* of the Sora Rail, although unquestionably proceeding from a Snipe.

1894, September 22.— In that portion of the marshes where so many Snipe were seen or heard last evening I could find only one this forenoon, although fresh borings and chalk-marks everywhere attested their recent presence. Upwards of twenty birds were flushed, however, from a bed of tall, rank grass on the river-bank half a mile or more below the Outlet. Twelve rose together and went off in a compact flock like Sandpipers, mounting high in air and remaining long on wing, but finally alighting near where they had started. All were very wild at first, but after being shot at a few times they lay better and I bagged eleven of them in the course of an hour or so. Many were seen on the ground, standing erect watching me, or skulking hurriedly from tussock to tussock over open muddy spaces. It is unusual for Snipe to behave thus, under such conditions, for there was no wind, and the sun shone bright and warm from a perfectly cloudless sky.

1894, September 26.— As we were rowing up the Magalloway River a Snipe kept flitting on ahead of us, alighting many times on bare mud at the water's edge, but never once permitting us to get within gunshot.

1894, October 1.— My experience with Wilson's Snipe on September 22 last was closely paralleled this forenoon when practically all of the thirty-two birds I saw in the Outlet marshes were exceedingly shy and restless despite the fact that the weather was clear, warm, and almost windless. Most of them rose beyond gun-range, often from mud-flats, where there was absolutely no cover, and flew off quite out of sight, sometimes in Sandpiper-like flocks, and invariably with unusual swiftness and directness, characteristic, I think, of migrants freshly arrived from the North. At evening I revisited the marshes to ascertain if many of them would return. In the dusky twilight they came in really bewildering numbers. Indeed, for fifteen or twenty minutes at the height of this remarkable incursion the sound of their rushing wings and of their hoarse, rasping voices, was well-nigh continuous. One that alighted near me uttered a subdued "jarring" cry, probably the same as that heard on October 8, 1890, in Leonard's Pond, and then described in my notes as a "purring" one.

1895, September 9.— In a carefully-handled boat one may often approach Snipe very closely where there is little or no cover. Noticing a bird to-day, crouching in a slight depression on a bare mud-flat at the Outlet, and then another squatting within a foot of the first, I paddled towards them. Neither of them moved until the bow of my canoe was within six feet of them, when both rose on wing and flew swiftly off.

1896, September 7.— Early this foggy morning I found about a dozen

Snipe on mud-flats bordering the Androscoggin River not far below the Outlet. Here they were running about rather briskly, over perfectly level ground absolutely devoid of vegetation and fully one hundred yards from the nearest grass, intermingling freely with Semipalmated Plover and with Sandpipers of three or four different kinds. For the most part they fed in much the same manner as these smaller Waders, but occasionally I saw them probe the mud a little, in a perfunctory sort of way, as if merely to keep in practice at this, their characteristic, accomplishment. Every now and then they huddled close together for a few moments like so many Peeps. Whenever I tried to approach them they would rise on wing beyond gun-range, and fly still farther off. All the while the fog hung dense and low over River and flats. When it finally cleared and was replaced by bright sunlight the Snipe flew, one after another, into a neighbouring grassy marsh, where they alighted somewhat scattered. I followed, but got only a few shots, for the birds were rather wary and did not lie well.

1900, September 8.— As I was comfortably reclining, shortly after sunset this evening, in a canoe drawn up on the shore at Moose Point, a Snipe appeared on the crest of an earthy bank within four yards of me and began feeding, after gazing steadfastly at me for a moment or two. Moving from place to place, sometimes by walking slowly, sometimes by short, swift Sandpiper-like runs, it tried repeatedly to probe, but finding the hard-packed soil difficult to penetrate soon turned its attention to the surface of the ground from which it seemed to be gleaning abundant food, too inconspicuous, however, for my eyes to see. At length it discovered a worm, just beneath the surface, and pulling it out with a single vigorous tug, just as Robins are accustomed to do, swallowed it almost instantly. Then it skulked off into some grass, but presently returned, coming even nearer me than before, and giving me a good view of it on the open bank, in fairly strong light. Although still close at hand I heard its *scaipe* cry given a dozen times or more in quick succession, coming, unmistakably and continuously, from precisely the same spot in the grass, where, without question, the bird was uttering it *while on the ground*. On no other occasion that I remember has the *scaipe* ever reached my ears when the Snipe which uttered it was not on wing.

1900, September 21.— In a narrow and forest-bordered reach of Cambridge River, about two miles above Abbott's Mill, we came upon a Snipe, this afternoon, basking in the sunshine, on a sandy bank sparsely covered with short, green grass. Every now and then he closed his eyes to indulge in a brief nap. He paid little attention to us at first, even when, as thrice happened, my guide cautiously worked our boat to within eight feet of him and I snapped a camera at him, securing one or two rather good pictures. But as we were paddling quietly away after the final approach, he became suddenly alarmed, and flew across the River. We did not again succeed in getting near him, although keeping him in sight for sometime longer as he flitted on well in advance of the boat, skulking or squatting under overhanging banks or beneath tufts of grass, whenever he alighted. While I was photographing him he crouched once for

an instant, but during most of the time stood erect, in attitudes not unlike those characteristic of watchful Sandpipers.

Unlike most Waders, Wilson's Snipe have not apparently diminished much in numbers within the period covered by my recollection. Such, at least, would seem to be the case with the birds which migrate through New England in spring and autumn. They are said to occur as plentifully as ever at Lake Umbagog, while in the great meadows at Concord, Massachusetts, I find them quite as numerous now as I did forty years ago, although, not long before that, they had been far more abundant than they have been since, if local tradition, current then, may be accepted as trustworthy. How they can have held their own so well during the last half-century is difficult to understand, for no game-birds are more ceaselessly persecuted. Nor are any others so given to revisiting haunts few in number, easy of access, and familiarly known to every gunman. There are, however, more or less Snipe who, during their migrations through New England, wisely shun the broad meadows where so many of their kind are annually slain, preferring to frequent boggy places of less extent, where most of them escape notice, although every now and then a gunner, looking for something else, may flush and shoot one or two of them. Such birds are probably more numerous than we realize. Because of their comparative immunity from molestation, they perhaps serve rather importantly to make good the general annual loss the species suffers.

Limnodromus griseus griseus (Gmelin).

Red-breasted Snipe.

Very rare transient visitor in autumn.

Early in the forenoon of September 14, 1900, Mr. and Mrs. William Stone and I were paddling down the Androscoggin River not far from where it leaves the Lake when our attention was attracted to some sportsmen who were beating the marshes directly opposite the creek that leads into Leonard's Pond. They proved to be Harry Dutton and Henry E. Russell of Boston, accompanied by Alva Coolidge and another guide. A few moments later we noticed four large Waders feeding on a narrow space of freshly-exposed mud at the edge of the River and not far away. Mr. Dutton also saw them and presently fired several shots at them, finally killing three. Before this had been accomplished and while the frightened birds were flying to and fro over the marsh, calling loudly, I recognized them as Red-breasted

Snipe, a species which I had not met with before in the Umbagog Region, although ever half expecting to do so. On landing and critically examining the birds I found that all three were perfectly typical examples of *Limnodromus griseus*, apparently immature and rather peculiarly garbed, having the brown of the upper, and the red of the lower, parts everywhere overspread and clouded with grey, through which the darker or richer colours showed dimly as through a gauzy veil. Never having taken many Red-breasted Snipe in autumn, I have seen comparatively few in this mixed livery, although they wear it regularly, I suppose, when changing from the brown and red midsummer, to the grey and white winter, dress. Unfortunately Mr. Dutton was so little impressed by what I said to him about the local rarity of his birds, that he afterwards had them all plucked and eaten, instead of sending them to some taxidermist for preservation, as seemed so desirable from my point of view.

Calidris canutus rufus (Wilson).

KNOT.

Very rare transient visitor.

According to a brief note entered in my journal under date of May 23, 1880, I was then assured by the late Monroe Wormell of Bethel that the Knot was among other local rarities which he, or his companions, had occasionally shot at Lake Umbagog, during previous years — presumably in late summer or early autumn, although the journal does not so state. As Mr. Wormell was an intelligent sportsman, addicted to making excursions along the Maine coast and perfectly familiar with all the Limicolae which appear there regularly, it does not seem likely that he could have mistaken any other bird for a species so easily identifiable as the Knot. There is a possibility, however, that the recollection of some shooting experience on the seacoast had become confused in his mind with that of another which happened at the Lake. For men possessing excellent powers of observation and by no means indifferent memories, but unaccustomed to preserve written notes of what they see and hear, will occasionally err in a precisely similar way. Hence the record given above is not, perhaps, quite conclusive, although I am personally inclined to put strong faith in it. Unfortunately there is no other evidence at present known to me which indicates that the Knot ever occurs in the Umbagog Region.

Pisobia maculata (Vieillot).

PECTORAL SANDPIPER. GRASS-BIRD.

Transient visitor during south-bound migration in summer and autumn, usually common, sometimes abundant.

July 21–October 23.

Pectoral Sandpipers migrating southwards from breeding-grounds lying much farther northward visit Lake Umbagog regularly in summer and autumn. A few begin to appear before the close of July and more come in August, but not very many are seen before the middle of September, while October is ordinarily the month of greatest abundance. Thus the autumnal migration of the species extends over a total period of fully three months, and hence is somewhat more protracted than that of almost any other limicoline bird which frequents Umbagog, except the Greater Yellow-legs. Most of the others resort more or less often to muddy, sandy, or rocky shores of secluded coves, or perhaps to the oozy margins of small ponds or lagoons encompassed by forest, but the Pectoral Sandpiper habitually shuns all such places, and is so strictly confined to extensive, grassy marshes or broad mudflats bordering directly on the Lake that I cannot recall ever seeing it anywhere else, except, of course, in flight. Whenever the marshes at the mouth of Cambridge River, and about the Outlet, happen to be in prime condition at the right season, they are sure to attract Pectoral Sandpipers. These birds sometimes occur so numerously in the Outlet marshes, late in September and early in October, that I have seen fully one hundred there in the course of a single day. They commonly go in flocks, which may contain anywhere from four or five to thirty or forty members each. The gunners call them Grass-birds, not inappropriately, and pursue them eagerly, for they afford rather exciting sport, and are exceedingly good to eat, when properly cooked and served. Although by no means shy, they are so given to scattering and skulking among the grass, when on the ground, and to distant or protracted flight after being flushed, that even when they are most plentiful, not very many are likely to be bagged unless, perchance, by sportsmen who take prompt advantage of the opportunities which sometimes occur to shoot into flocks well "bunched" and passing close at hand on wing.

As a rule the Grass-birds keep apart by themselves, but Baird's or Semipalmated Sandpipers, or perhaps even Black-bellied Plover or

Wilson's Snipe, may be seen, occasionally, feeding with or very near them. Whenever this happens it is evident that the Grass-birds attract, rather than are attracted by, the other Waders, and merely tolerate their companionship; or else that such association (especially with Wilson's Snipe) is purely fortuitous, as when Grass-birds rising on wing are not accompanied by any of the other species.

My journal and note-books contain comparatively few descriptive accounts of the habits or behaviour of Pectoral Sandpipers as observed at the Lake, and of these passages only the following seem to possess sufficient interest to be worth transcribing here:—

1889, September 19.— Three Pectoral Sandpipers on a grassy flat near the Outlet kept somewhat apart from a small flock of Semipalmated Sandpipers when on the ground, but repeatedly joined and accompanied them in flight. Feeding silently and busily they moved about, somewhat sluggishly or deliberately, but ceaselessly, sometimes wading out into pools until their tarsi were completely submerged. Once I saw a bird cross a narrow but deep channel by *swimming*. They permitted me to get within a few yards of them, but if thus closely approached invariably stopped feeding and stood erect and motionless, watching me intently. When flushed they rose suddenly and made off swiftly, twisting and doubling like Snipe and uttering, almost incessantly, the short, gutteral, somewhat rasping, yet not altogether unpleasing, flight-notes, *cr-r-r, cr-r-r*, because of which they are called "Creakers" by many coastwise gunners. Two birds that I shot at and wing-tipped made no attempt to conceal themselves in long grass or earthy depressions, abounding near where they fell, but merely tried to elude me by wading out up to their bellies in shallow water. When finally captured they uttered notes not unlike those just described, but louder and shriller, and given so rapidly and continuously as to form an almost unbroken and rather prolonged outcry.

1894, September 12.— Approaching, in my canoe, a mud-flat opposite the entrance to Leonard's Pond, where four Pectoral Sandpipers had just been seen to alight, I quickly noticed two of them standing perfectly motionless among some scanty grass, and not far from them an equally statuesque Wilson's Snipe. All three birds presently came out on a bare space of soft mud and began boring it in an essentially similar manner, although the downward stabs made by the Snipe were more rapid and vigorous than those of his companions, and also apparently more successful, for he brought up and swallowed something at every second or third thrust, whereas the Grass-birds did not seem to be getting anything whatever. When they drew together I fired, killing both and also, quite unintentionally, the Snipe. On stepping ashore to pick them up I came upon the other two Pectoral Sandpipers as erect and immovable as a couple of wooden decoys. No doubt they had remained there all the while, thus escaping my notice, chiefly because of this immobility, for they were only partially concealed by the thin screen of grass.

1894, October 1.— The behaviour of seventeen Grass-birds, watched to-day in marshes near the Outlet, reminded me forcibly of that of Wilson's Snipe. They probed muddy spots in almost precisely the same manner when feeding, and remained equally immovable for many minutes at a time when closely approached, evidently relying on their statuesque immobility or "concealing" colouration, or perhaps on both, to safeguard them from my observation, although they did not, like Snipe, ever skulk or squat in the grass. Wherever it formed a near background, however, it seemed to obliterate them almost perfectly, and more than once I overlooked as many as a dozen birds standing upright and fully exposed to view where, moreover, I knew that they were thus numerously assembled. Nor was it much easier to see them on bare mud, or where this had become covered with the densest possible growth of fine grass, only one or two inches in height, and looking at a distance like vivid green moss. They visited these emerald-green flats, as smooth, apparently, as any billiard table, rather frequently towards noon to bask or doze in the sun, but not to feed, the ground there being slightly elevated, and too hard to be penetrated easily by their sensitive bills. Like most other Grass-birds that I have met with at the Lake they were exceedingly tame, yet prone to take alarm at loud sounds. Thus the report of a gun, perhaps fired half a mile away, would often cause them to rise all together and dash off with frantic haste. When disturbed in this or other ways they were likely to remain on wing for some time, coursing back and forth over marsh or lake, now high, next low, with many an abrupt wheel and sudden turning. Such flights usually ended in the return of the birds to the place whence they had started, unless signs of danger were obvious there, in which case they would alight somewhere else.

As far as I have been able to observe the Grass-birds which migrate through New England have not diminished appreciably in numbers within recent years. This, perhaps, is because so many of them do not arrive until comparatively late in autumn, when the salt marshes along our sea-coast, which they chiefly frequent, are visited by gunners much less often than in August and early September, when wading birds of many other kinds are accustomed to flight southward most numerously.

Pisobia fuscicollis (Vieillot).

White-rumped Sandpiper. Bonaparte's Sandpiper.

Not uncommon transient visitor in autumn.
September 7–October 26.

White-rumped Sandpipers visit Lake Umbagog regularly, and not infrequently, if rather sparingly, in autumn, appearing oftenest during the month of October. Those arriving early in the season are mostly

adult birds which occur singly or two or three together; those coming later, of various ages and sometimes in flocks containing as many as eight or nine members each, but rarely, if ever, a greater number. I have never found them elsewhere than immediately about the Lake where, as a rule, they avoid grass-green places, preferring to haunt bare, muddy shores or flats, especially those lying near the mouth of Cambridge River, and in the neighbourhood of the Outlet. Invariably among the tamest and most confiding of our so-called shore-birds, they will usually permit one to approach, either on foot or in a boat, within five or six yards, while I have known a gun to be discharged into a flock with fatal effect, but without causing any of the birds which escaped injury to take wing. Almost all that I have ever shot for specimens, it has never been my custom to kill them for any other purpose, were so thickly encased in fat, ready to melt and spread at the touch of warm human fingers, that the task of cleansing and preserving their skins was not less difficult than tedious. Like most obese creatures they are habitually sluggish, confining their wanderings afoot to limited areas, and exploiting these very deliberately, walking slowly and sedately in crouching attitudes, with measured steps, frequently stopping to thrust their bills listlessly a little way into the soft ground, or to pick up small morsels of food from the surface. Occasionally, however, one may see them running to and fro over the mud quite briskly and ceaselessly, perhaps incited to this comparatively unusual behaviour by the example of other Waders feeding close about them, for they are by no means averse to the companionship of several of the lesser kinds, such as Semipalmated Plover and Sandpipers, Grass-birds, Dunlins, etc. Although somewhat loath to take wing, even when threatened by obvious danger, they are likely to fly swiftly and far, when once started, doubling and circling over the marshes in much the same manner as other small Sandpipers. They have an unmelodious flight-call very different from that of any of the others and described in my notes as "a feeble lisping *zip* or *tsip*," fringilline, rather than limicoline, in character. It resembles the familiar chirp of our Vesper Sparrow, but is sharper and more strident. This call is rarely uttered by White-rumped Sandpipers on the ground, unless they are about to spread their wings for flight. When several of them are feeding together, and conversationally inclined, they sometimes indulge in brief outbursts of subdued twittering or chattering, inaudible at a distance of more than a few rods, and not unlike those of Semipalmated Sandpipers similarly engaged.

Bonaparte's Sandpipers are hardy birds. They may be seen at the

Lake when its bordering marshes are stiff with frost. Once (October 26, 1883), I found nine of them near the mouth of Cambridge River, two days after the entire region had been covered with snow to a depth of seven inches.

Pisobia bairdi (Coues).

BAIRD'S SANDPIPER.

Uncommon transient visitor in early autumn.
September 1–25.

My field-experience with Baird's Sandpiper in the Umbagog Region is fully described in the following passages, most of which are taken nearly literally from journal or note-books. I should perhaps abstain from inflicting all of them on my readers were it not that the bird to which they relate is still comparatively little known, at least to ornithologists living in New England.

1874, SEPTEMBER 1.— While paddling down Cambridge River from the Lake House this afternoon I noted a small Sandpiper running nimbly along the muddy shore near the mouth of Peaslee's Brook. As it had an unfamiliar look I shot at it, when it rose on wing uttering a single mellow *tweet*, and after flying a short distance dropped dead. It proved to be a Baird's Sandpiper, the first that I have ever seen living.[1]

1880, SEPTEMBER 4.— On a mud-bar at the mouth of Cambridge River, Alva Coolidge and I found a flock of small shore-birds this evening. Two were immediately recognized as Semipalmated Plover. The others, six or seven in number, were evidently Tringae, but of just what kind I could not make out in the fading light, even when our boat drifted within ten yards of them. They acted like Least Sandpipers, but were almost as large as the Plover and their backs seemed peculiarly marked. Every now and then we heard a low conversational twittering in which several of them apparently took part. At length they started to fly when I fired both barrels at them, killing only one bird which turned out to be a Baird's Sandpiper. Unfortunately, it was so badly mutilated by the shot, and also very fat, that it could not be preserved as a specimen. That the other five or six Sandpipers in this flock were of the same species as the bird I got is almost, if not quite, beyond question.

1880, SEPTEMBER 5.— Two Baird's Sandpipers, which may or may not have been included in the flock encountered last evening, were found early this afternoon on the mud-bar at the mouth of Cambridge River in close companionship with a Semipalmated Sandpiper, and not far from five Ring-necked

[1] This specimen was recorded in the Bulletin of the Nuttall ornithological club (April, 1876, **1**, p. 19), where the year of its capture was erroneously given as 1875, instead of 1874.

Plover which they afterwards joined. They were very tame, permitting close approach. The light edging of the feathers of their upper parts showed plainly, giving them a striped appearance and enabling me to identify the birds almost at the first glance. On the ground they looked scarce larger than their companions, the Ereunetes, but on wing were quite evidently of considerably greater size. Their flight was in no respect peculiar, but swift and devious like that of most Tringae. I finally shot them both, afterwards ascertaining by dissection that one was a young male, the other a young female. Although excessively fat, they were made into fairly good specimens.

1894, September 4.— The report of my gun, fired to-day at some Yellow-legs, caused a large flock of Semipalmated Sandpipers, feeding near the Outlet, to rise on wing. As they passed me beyond gun-range I noticed among them four decidedly larger birds which were heard to utter unfamiliar flight-notes, "half mellow and half squeaky." For several reasons I suspect strongly that these four birds were Baird's Sandpipers.

1894, September 12.— Early this afternoon I embarked in a canoe at Pine Point and sailed across the Lake to the Outlet where there is now a broad expanse of bare, muddy, and somewhat hillocky ground much frequented by shore-birds of various kinds. After skirting this closely, without seeing anything except a Solitary Sandpiper, I was unshipping and stowing away the sail, when the canoe, drifting backward with the wind, brought me opposite eight birds which had been passed unnoticed only a few minutes before, although within fifteen feet of the water's edge, and in a spot which I remember to have scrutinized with especial care. Four were Semipalmated Sandpipers, two Grass-birds, and two Baird's Sandpipers. Stopping the drift of the canoe by means of a paddle driven into the mud, I watched the birds for upwards of ten minutes. After remaining together and perfectly motionless for awhile, regarding me with evident timid suspicion, they scattered and began to feed. While thus engaged the Semipalmated Sandpipers ran nimbly from place to place, showing themselves fearlessly at the very edge of the water, whereas the Grass-birds walked slowly and kept well back among the hillocks, crouching so low as often to be hidden from my sight, although one or the other bird would every now and then stretch up its head and neck to gaze at me for a moment. The behaviour and attitude of the Baird's Sandpipers seemed about intermediate in character between those of the other two species. With their backs towards me they resembled the Grass-birds rather closely; when their breasts were fully exposed they looked more like the Ereunetes. I finally shot one on the ground, and the other as it took flight. Both birds proved to be females in good condition, but not overloaded with fat.

1894, September 25.— Three small Waders, feeding at the edge of a shallow pool of surface water on a mud-flat, near the left bank of the Androscoggin River, a few hundred yards from where it leaves the Lake, attracted my attention this morning. One was quickly recognized as a Ring-necked Plover. At the other two I gazed long and critically, without being able to satisfy myself as to just what they were, although viewing them through an opera-

glass at a distance of only twenty-five yards, and in a good light. At first I thought that they might be Baird's Sandpipers, but they looked and acted more like Semipalmated, as they ran briskly to and fro over the bare mud, or waded out up to their bellies in the pool to probe its soft bottom assiduously. At times, however, they walked about as slowly and sedately as Grass-birds are accustomed to do. The longer I watched them the stronger became my impression that they must be Ereunetes, although seeming too large and brown-breasted for that species. To settle the doubt I finally shot them, not without reluctance, presently replaced by self-congratulation when, on picking them up, I found that they were really Baird's Sandpipers. Subsequent dissection established the fact that one was a young male, the other an adult female. They were in plump condition, but less fat than Tringae commonly are at this season.

1896, September 3.— Seeing a couple of small Waders flying across the Androscoggin River not far below the Outlet, this morning, I instantly said to myself "there go two Baird's Sandpipers"— although the birds were then forty rods away. They were thus promptly and, as it afterwards proved, correctly, identified, not by any obvious characteristic of flight or colouring, but by the *krep* call which they kept uttering while on wing, and with which I am somewhat familiar, having heard it repeatedly before now. It is appreciably different from the call of any other Sandpiper known to me, although not so very unlike that of the Sanderling. After crossing the River, the two birds, above referred to, alighted within fifty yards of a small flock of Ereunetes which, however, they did not join. Approaching them closely, I watched them for upwards of fifteen minutes. On first noticing me drawing near, they stood erect with upstretched necks, regarding me intently and distrustfully, but their feeding-operations were resumed soon after I ceased to advance. By successive runs, eight or ten feet in length and often executed very swiftly, they moved about quickly in various directions over soft mud, or through shallow water, frequently stooping to pick up small morsels of food, but not once using their bills for probing under ground or water. Wading full-leg deep into a pool, one of them took a bath, ducking its head, and employing its wings to scatter drops of water over its back precisely after the manner of a passerine bird similarly employed. Whenever these birds were seen in favouring lights, their buffy breasts and the characteristic marking of their dorsal plumage showed so plainly, that it seemed impossible to mistake them for Sandpipers of any other kind, although such has not often been my experience when viewing others of their species, under apparently similar conditions, in former years. They were so pretty and interesting that their lives would have been spared had not their skins been desired for my collection. Being wholly free from fat they made excellent specimens. Both proved to be males, one adult, the other young, I thought.

1896, September 5.— A Baird's Sandpiper seen near the Outlet to-day occasionally alighted for a moment, but for the most part kept flying about restlessly and ceaselessly over Lake and marsh, showing no inclination to join

numerous Semipalmated Sandpipers and a pair of Ring-necks, feeding quietly on a mud-flat. Once it came sufficiently near to give me a long shot which had no apparent effect. I heard its characteristic flight-call many times, and to better advantage than before. This note sounded more like *kreep* than *krep*, as I have hitherto rendered it.

1897, SEPTEMBER 4.— Two Sandpipers seen on a sand beach in Whale's Back Cove to-day by Henry A. Purdie, and described by him as "about the size of Bonaparte's Sandpipers but having buff-coloured breasts and greyish backs," may well have been Baird's Sandpipers. He had a good view of them for they were very tame.

Briefly restated for the benefit of readers not sufficiently interested in the subject to concern themselves with all its details, my experience has been:— (1) that Baird's Sandpipers visit Lake Umbagog early in September, appearing oftenest during the first week of the month; (2) that they are to be found only in the immediate neighbourhood of the Lake where they frequent bare, muddy, shores or flats in preference to grassy marshes; (3) that they usually occur singly or in couples, but often in company with other small Waders; (4) that they are invariably tame and confiding; (5) that at times they move about quickly, at others slowly, when feeding; (6) that it is sometimes easy, but ordinarily difficult, to identify them certainly without making use of a gun; (7) that the *kreep* call they utter in flight is sufficiently unlike that of any other Wader of similar size and general colouring to be of service as a means of field-identification when the birds are seen on wing; (8) that they are commonly loaded with fat, and hence not easily preserved as specimens.

Pisobia minutilla (Vieillot).

LEAST SANDPIPER. PEEP.

Not uncommon transient visitor in late summer and early autumn.
July 19–October 2.

My field-experience with Least Sandpipers at Lake Umbagog has been rather limited, perhaps because I have not been there often in July and August, when most of the south-bound birds that migrate through New England are accustomed to arrive and pass. Those that appear in the Umbagog Region seem to confine their annual visits to the immediate neighbourhood of the Lake and chiefly to grassy marshes or bare mud-flats, lying near where Cambridge River enters it, or not far from where the Androscoggin leaves it. On July

19, 1873, I saw a large flock of them in the Cambridge River marshes. All that have ever attracted my notice since then were met with singly or not more than four or five together, but perhaps in company with Semipalmated Sandpipers, or with Ring-necked Plover. The characteristic habits, behaviour, and appearance of the Least Sandpiper are so generally and familiarly known that the few commonplace observations relating to it that I have made at the Lake need not be mentioned here.

Pelidna alpina pacifica (Coues).

Red-backed Sandpiper. American Dunlin. Dunlin.

Rather common transient visitor in autumn.
September 27–October 20.

Although my records of Red-backed Sandpipers seen in the Umbagog Region are not numerous, they indicate that these birds occur there regularly and rather commonly, if only sparingly in autumn, chiefly during the month of October. All are then in plain white and grey winter dress, usually diversified, however, on the under parts of adult specimens, by black spots similar to those of the nuptial plumage, but less plentiful. I have never known Sandpipers of this species to be found elsewhere than in open places about the Lake or along neighbouring treeless reaches of the Cambridge and Androscoggin Rivers. They sometimes alight in grass-grown marshes, but much oftener resort to perfectly bare, muddy, or sandy shores or flats where they associate familiarly with Limicolae of various other kinds. Some of my personal experiences with them at Umbagog are thus described in the journal:—

1883, October 20.— An American Dunlin that I watched for several minutes to-day, before shooting it, was feeding, in company with a Solitary Sandpiper, on the muddy shore of Cambridge River only two or three hundred yards below the Lake House, near the mouth of Peaslee's Brook. Seeming to take no notice of my near approach it continued to walk slowly and sedately along the margin of the River, occasionally thrusting its bill almost to the base into the soft ground like a probing Snipe. When flushed it uttered a peculiarly mellow *tweet-twel-l-l-ut* just as it rose on wing. Shortly after this I saw four other birds apparently of the same species, flying about over the marshes near the mouth of the River.

1893, October 2.— A mixed flock of Waders, found late this afternoon on a

sandy beach at Moose Point, contained seven American Dunlins, several Grass-birds, two White-rumped Sandpipers, a Semipalmated Sandpiper, and two Black-bellied Plover. The Dunlins seemed shyer or more restless than any of the others, and whenever we started the flock they were the first to rise on wing. Before doing so they would stand erect and motionless for a few moments, with necks upstretched, eying us suspiciously. At such times it was easy to distinguish them from all their companions of the other species by their long bills and peculiarly graceful outlines. When undisturbed, and feeding busily, they rambled about slowly, in crouching attitudes, much after the manner of the Grass-birds. They uttered mellow, whistling calls of two syllables, resembling those of Pectoral Sandpipers, but appreciably different. We killed only one, an adult bird having under parts spotted with black.

1894, September 27.— As my guide, Jim Bernier, was paddling me down the Androscoggin from the Outlet early this forenoon, we noticed five Red-backed Sandpipers perched on little earthy mounds surrounded by water, and near them three Grass-birds. The Dunlins appeared so tame that I decided to photograph them at close range, if possible. After Jim had pushed the boat slowly over muddy shallows, until its bow was within eight feet of them, I exposed ten plates at them, thus occupying myself for almost two hours. Far from being disturbed by these proceedings my subjects, the Dunlins, took little or no notice of the clicking and snapping of camera doors, slides, or shutter, nor were they more heedful of the vigorous flapping of my focussing cloth when the strong northwest wind flouted it about. Even when I stood up or sat down, or changed the position of the camera, taking no especial pains to avoid sudden movement, or rather loud accompanying sound, the birds remained unalarmed. During much of the time they were apparently asleep, with their bills buried in the dorsal or scapular feathers, but with one eye at least half open as a rule. When, as repeatedly happened, I had occasion to rouse them by whistling, clapping my hands or talking to them, they would regard me for a few moments with mild wonder, and then relapse into peaceful slumber again; and this at a distance of only eight feet, with nothing between them and our boat save mud and water. Quite evidently they were tired and sleepy, perhaps because they had just completed a protracted migratory flight. Nevertheless, it seems truly remarkable that they should have been so utterly fearless, and also so wholly devoid of curiosity. After exposing the last plate, I thought it best to frighten them away because some gunners were approaching. Failing to accomplish this by thumping the boat with a paddle, I next used it to spatter the birds with water. This proved more than even they could endure, for after trying to dodge the showering drops by ducking their heads and running to and fro, they rose hurriedly on wing and flew upwards of half a mile before alighting in a distant part of the marsh.

Ereunetes pusillus (Linné).

SEMIPALMATED SANDPIPER. PEEP.

Transient visitor, during south-bound migration, occurring abundantly in September.

July 20–October 17.

Semipalmated Sandpipers flighting southward from breeding-haunts presumably lying far to the northward, and perhaps about Hudson Bay, may be seen at Lake Umbagog before the end of July, but they do not appear commonly until August, nor cease to do so until the very last of September, while stragglers have been known to linger into October, even after the middle of that month. Thus what we are accustomed to term autumnal migration, albeit performed more or less largely in summer, begins and ends for the most part decidedly later with the Semipalmated than with the Least Sandpiper, although covering a period of several weeks when both species are likely to be found at the same times and in the same places, if not in intermingling flocks, at least along our New England coast. At Lake Umbagog my personal field-experience with Semipalmated Sandpipers has been chiefly confined to the month of September, when they are far more plentifully represented there than Least Sandpipers, and usually somewhat more so than any other limicoline birds except, perhaps, Wilson's Snipe, and Pectoral Sandpipers. I have seen them by scores, if not hundreds, about the middle of the month, running or flying over mud-flats near the mouth of Cambridge River; but that happened long ago and indeed as far back as 1873. Within recent times the birds have rarely appeared in flocks containing more than twenty-five or thirty members each, and their total numbers have diminished steadily and unmistakably from year to year, doubtless because they have ceased to be ignored by gunners, as they were so generally half a century ago, and are now slaughtered mercilessly by about everyone carrying a fowling piece, a practice which should be forbidden everywhere by law, for Peeps afford no sport worthy of the name, and but tiny, if undeniably luscious, morsels of food when served at table.

One is apt to find Semipalmated Sandpipers oftenest and most plentifully at Lake Umbagog near where Cambridge River empties into it or in the neighbourhood of the Outlet, but they may be encountered almost anywhere about its shores, as well as up the Cambridge almost to Abbott's Mill, or down the Androscoggin as far as Leonard's Pond. They shun all ponds, lagoons, and river-reaches closely encom-

passed by forest, and have little liking for very grassy marshes, preferring at all times to haunt level spaces of very wet and soft ground, nearly or quite barren of vegetation. Here they trot to and fro, almost as actively and ceaselessly as so many ants, picking up inconspicuous worms or larvae, from the surface of the mud or seeking them beneath it by thrusting down their sensitive bills quite to the nostrils, after the manner of boring Snipe, but less quickly, vigorously, and persistently. They are also given to wading out into shallow water where they pull up good-sized masses of aquatic plants such as Utricularia. By shaking and piercing these with their bills they evidently obtain from them food of some kind, perhaps insect larvae or small Crustacea. More likely than not there will be at least one bird in the flock possessed of only a single leg, the other having been shot off. Nevertheless, it will move about quite as briskly and tirelessly as any of the rest, if somewhat less gracefully, apparently suffering little inconvenience from its loss, after the wound has healed. Nor does it often seem shyer than the others despite its sad experience with man. For Semipalmated Sandpipers are slow to profit by such lessons, being by nature singularly trustful and confiding birds. One that Henry M. Spelman and I met with at the Lake on September 13, 1889, was so tame that we almost laid hands on it, and photographed it repeatedly at distances of from four to ten feet, securing some excellent negatives. Yet the bird was evidently in sound and vigorous health. When forced to take wing it usually alighted on a near by stump; after remaining there a few minutes, it invariably returned to about the exact place where we first saw and finally left it. This spot must have held some very potent attraction for the Sandpiper, although differing in no obvious respect from the remainder of a muddy, riparian shore hundreds of yards in length.

Crocethia alba (Pallas).

SANDERLING.

Transient visitor during autumnal migration, of infrequent but occasionally abundant occurrence.

August 12–September 16.

Sanderling visit the Umbagog Region somewhat irregularly and infrequently, but sometimes very numerously, in late summer and early autumn, appearing almost invariably just before or after violent easterly storms, which may serve to drive them inland from the Maine

coast, although I incline to think that they are much more likely to be passage migrants coming directly from farther north, and not accustomed to halt before reaching the sea-coast unless forced to do so by strong winds accompanied by heavy rain. If this be really so there may be a perfectly regular and by no means inconsiderable south-bound flight of birds which ordinarily passes unnoticed. My definite records of their occurrence are as follows:—

1873, September 13.— A Sanderling received in the flesh to-day at the Lake House was killed yesterday (12th) at Richardson Lake.

1874, August 13.— Charles F. Barstow found a lone Sanderling on the muddy banks of Cambridge River not far below Abbott's Mill and shot it, showing it to me half an hour later.

1874, September 17.— Late this afternoon, when a gathering northeast rain-storm was about to begin, I saw two Sanderling together near the Outlet.

1880, September 9.— Eight Sanderling, seen on a mud-bar at the Outlet this afternoon, were feeding along the edge of the water and keeping just out of reach of in-rolling and receding waves, precisely as they are accustomed to do on sandy, coastwise beaches. I shot four of them, and preserved the skin of one. The weather was cloudy and the Lake swept by a strong, raw, easterly wind.

1880, September 16.— The heavy northeast rain-storm of yesterday came to an end last night, but unbroken masses of cloud, driving before a brisk northwest wind, continued to obscure the sky all day, and the air was decidedly chilly. In the afternoon we paddled from Moose Point to the Outlet, following the shore closely for upward of a mile. Everywhere along this stretch the grassy marsh-lands were separated from the waters of the Lake by a smooth, gently-sloping beach several yards in width, and for the most part muddy or clayey, although somewhat sandy in places. Here "to my surprise, Sanderling were actually abundant" according to an entry made that evening in my journal. As I recall the experience now, small flocks of them, one or two hundred yards apart, dotted the beach for its entire length. Partly because of their numbers, partly because they kept flying to and fro, we made no attempt to count them, but there must have been at least one hundred in all.

1889, September 18.— A Sanderling shot to-day at Moose Point was feeding in company with five Semipalmated Sandpipers on a sandy beach. The weather was warm, cloudy, and at times showery.

Totanus melanoleucus (Gmelin).

GREATER YELLOW-LEGS. WINTER YELLOW-LEGS. YELLOW-LEGS. YELLOW-LEG PLOVER.

Transient visitor in spring, summer, and autumn, occurring regularly and commonly, sometimes in large numbers.

May 12–June 9; August 27–October 31.

Of the various species of Waders, both large and small, which migrate southward through New England in late summer and autumn from breeding-grounds lying farther north, there is not one which appears at Lake Umbagog more regularly, frequently, and conspicuously, or even much more numerously at times, than the Greater Yellow-legs. Nor is there another, except, perhaps, Wilson's Snipe, whose coming is so eagerly anticipated there by veteran gunners, few of whom ever fail to be thrilled with pleasurable excitement by the sight of a flock of "Winter" Yellow-legs, feeding on some muddy shore, or by the sound of their clear, ringing voices as they circle overhead. The splendid birds are sufficiently wary and resourceful to furnish most attractive sport, and being almost as full-bodied as Teal, and scarce less good to eat, are justly prized for table use. Hence they are enthusiastically hunted by almost every marsh-frequenting human who carries a gun, and have been as far back as the traditions of field-sports go, if not since the first European settlers landed on New England shores. Despite this widespread and ever-increasing persecution, they apparently manage in some unaccountable way to withstand and make good much of the heavy loss which they must suffer annually from the hands of sportsmen. Indeed I have failed to note any decided lessening of their numbers in New England during the past thirty or forty years. But as there has been no apparent increase, it follows that there must actually have been a general and rather considerable decrease. For inasmuch as the birds have been banished, especially along our sea-coast, from many a former haunt encroached upon of late by settlements of summer cottages or by trolley lines in frequent use, or materially changed in other ways, it is evident that they would now resort more numerously than ever before to shores and marshes as yet unchanged, if their numbers remained undiminished. In other words there would necessarily be a "doubling up" as it were, within the reduced areas of occupation. As this has not taken place, the birds must really be less plentifully represented than formerly, at least in New England.

Although the Umbagog Region offers little attraction to Greater Yellow-legs in spring, a few birds passing northward in May or early June sometimes alight on rafts of driftwood floating in sheltered coves of the Lake, or, about pools of rain water in upland fields or pastures. My personal observation of the return migration from the North has failed to furnish evidence that the birds ever begin to arrive until late in August, or continue to appear after the close of October, while I have always met with them oftenest and most numerously between the 10th of September, and the 15th or 20th of October; but if the testimony of certain local hunters is to be credited the heaviest flights of all sometimes occur still later in the season. Several of these men, whose word I have never found reason to doubt, assured me in September, 1880, that they had observed great flocks of Winter Yellow-legs passing at frequent intervals during an entire day, in November of the preceding year (1879), after the Lake had completely frozen over. One of them thought that he had seen, on that occasion, upwards of a thousand birds. It may be that these reports were not much exaggerated, for similarly-belated movements of about equal magnitude have been noted in eastern Massachusetts, even within recent years.

In 1879 I heard on what seemed good authority that a flock of Greater Yellow-legs numbering upwards of fifty had been seen about the middle of September at Lake Umbagog, and in 1889 a sportsman whom I met at Moll's Rock on September 12, claimed to have found at least three hundred assembled near the Outlet only a few days before, and to have killed eleven by the double discharge of his gun. I cannot remember ever encountering a flock containing over twenty-eight or thirty members, nor often one that had more than twelve or fifteen, while very many of the birds that I used to meet with occurred singly, or in couples, or by threes or fours.

The name Winter Yellow-legs, by which the species is commonly known to sportsmen, was perhaps originally bestowed by some one who had witnessed a belated migratory flight, such as that above mentioned. Its fitness seemed obvious to me on October 17, 1883, when, near the mouth of Cambridge River, I came upon two birds in marshes hard frozen by a sudden fall of temperature to 12° Fahr.; still more so did it appear on the 25th of that same month when another bird was found in these marshes immediately after a snowfall had covered them to a depth of fully seven inches.

Less fastidious in respect to its choice of feeding-grounds than most other Waders, the Greater Yellow-legs is accustomed to alight almost

everywhere about the Lake where flat, muddy, or grassy shores border on water of no great depth. It prefers, however, to all other haunts the wide open marshes near the mouth of Cambridge River, and in the neighbourhood of the Outlet. Here one is most likely to find the big, stately birds walking quietly about over oozy flats not much encumbered with grass, or around the edges of slimy pools, or along the margins of shallow, winding creeks. They may be seen basking or dozing in the sun, perhaps on isolated lumps of mud surrounded by water, if the weather be clear and warm and the day well advanced. Although confining their autumnal visits chiefly to the Lake and its immediate neighbourhood, they are not unknown to appear several miles from it, up the Magalloway and Cambridge Rivers or, less often about some of the larger forest-encompassed pools. For the most part they are too alert and wary to be approached within gun-range where there is little or no cover to screen the sportsman from their view. Should he make such an attempt, whether stealthily on foot, or in a carefully-handled boat, he will commonly have only his trouble for his pains unless, indeed, the interest of watching the graceful birds, at first engaged in feeding, then standing erect and suspicious, finally rising on wing and dashing off with loud cries of alarm, may seem to him an adequate reward. To this rule of general shyness there are, however, occasional exceptions such as those referred to in the following passage taken from my journal:—

1890, October 6.— Late this afternoon we found three Greater Yellow-legs together in one place, and as many more in another, near the Outlet. By killing all six of them I ascertained that, with a single exception, all were old birds, yet they permitted us to approach in the open within close gun-range. One, an adult, was so very tame and fearless that, when my guide ran the boat ashore scarce ten feet from it, it merely raised its head, walked on a few steps, and then began feeding again, moving slowly along the shore with head carried low, stopping every now and then to pick up some morsel of food, when it tilted its body forward and downward without perceptibly bending its legs. Once it waded out into the River up to its belly, and repeatedly plunged its entire head and neck under water. At length I fired directly over it at one of the others, with the muzzle of the gun held within six or eight feet of it, fully expecting it to rise at the report and give me a good flying shot, but it only opened and closed its wings twice or thrice, at the same time sounding its shrill whistle.

In some respects the experience just related was perhaps less remarkable than one which had befallen me in the same neighbourhood on a previous occasion, October 17, 1883, when a Greater Yellow-legs,

walking along the margin of the River, continued to feed without betraying the least fear of me, when *very* closely approached, despite the fact that its lower mandible had been shattered, presumably by a charge of shot, and was hanging straight down, suspended by only a single shred. Why this bird had not lost all confidence in man because of its sad experience and how it could obtain food with such apparent ease while thus disabled, were matters past my comprehension.

Inasmuch as Greater Yellow-legs are more or less given elsewhere to nocturnal migrations, I have little doubt that they sometimes enter and leave the Umbagog Region during hours of darkness, although no evidence afforded by my notes or recollection fully warrants such an assumption. We often saw them arriving and departing by day, usually in the early morning or late afternoon if the weather were fine, at almost any time if it were stormy. When seen approaching from farther north, they were commonly first sighted so high in the air that they looked no bigger than Swallows. After circling twice or thrice over the Lake on set wings, whistling loudly and volubly, they were likely to pitch down headlong into the marshes to feed and rest there during the remainder of the day, if not for a considerably longer period, provided no gunner happened to fare that way. Some, however, kept straight on without stopping, and perhaps without lowering their line of flight below the level of the mountain tops to the southward over which they were accustomed to pass. We heard from them at the Lake, only the familiar vocal notes which they utter everywhere in autumn. The commoner of these were, of course, the loud, clear, far-sounding whistles, usually four, but occasionally only three, in number, following each other without pause in a descending scale, and used either as cries of warning or alarm, just as the birds took wing, or, (without obvious change of intonation), as questing or responsive calls to one another or to answering sportsmen, during ordinary flight. When wheeling low over the marshes just before alighting they uttered a prolonged series of more subdued and rolling whistles, all in the same key, and very pleasing to the ear.

Totanus flavipes Gmelin.

YELLOW-LEGS. SUMMER YELLOW-LEGS.

Common transient visitor during south-bound migration in summer and autumn.

July 20–October 2.

As the names by which the birds are familiarly known respectively indicate, the southward migration of the Summer Yellow-legs begins and ends earlier in the season than that of the Winter Yellow-legs, although in the Umbagog Region, as well as elsewhere in New England, the two species often occur at the same times, and sometimes intermingle in the same flocks, late in August and early in September. Most of the Summer Yellow-legs pass before the end of the former month, but they sometimes continue to come and go rather numerously during the first week of September, and sparingly almost if not quite up to the 1st of October, after which they are rarely noted. I have found them only in the immediate neighbourhood of the Lake, oftenest close about the Outlet, or near the mouth of Cambridge River, where they resort chiefly to stretches of bare, soft mud bordering on lake, river, or creek, and to such portions of the adjoining marshes as are comparatively free from vegetation. Although ordinarily less plentiful than the Winter Yellow-legs, they sometimes appear in considerable numbers and occasionally in large flocks. Thus in the afternoon of September 6, 1896, during a southeasterly rain-storm, upwards of one hundred of them, feeding on a mud-flat opposite to the entrance to Leonard's Pond, were closely approached and watched for some time by my guide, Will Sargent. Early the next forenoon, when the sun was shining brightly, I found twenty-two on a mud-bar at the Outlet and killed six, all but one of which proved to be young birds. The September flights are almost always composed mostly of young birds, whereas the flocks which appear early in the season are usually made up largely, and sometimes wholly, of adults still in worn nuptial plumage.

After watching the birds just referred to I wrote in my note-book that evening:—

The Summer Yellow-leg seems an exact counterpart of the Winter in respect to general appearance and behaviour. It has the same firm, measured step, when walking about in quest of food; the same perfection of form and outlines, and grace of position, when standing erect and watchful; the same habit of tilting its body and alternately lengthening and shortening its neck with a bobbing motion, when suspicious of danger and about to take wing. Its flight,

also, is essentially similar to that of its big cousin, but somewhat slower and more buoyant, and hence not so suggestive of momentum as that of the larger, heavier-bodied bird. Less vociferous and loud-voiced than *T. melanoleucus*, *T. flavipes* has a more subdued and mellow call, uttered frequently on the ground, and still oftener on wing, and consisting ordinarily of no more than two whistles, both given in the same key and pitched lower in the scale than the first two notes of the four-syllabled call of *melanoleucus*.

An earlier entry in the note-book thus describes the behaviour of several birds watched on September 7, 1889:—

At sunset, after a rainy day with easterly winds, I found four Summer Yellow-legs and a Grass-bird on a mud-flat at the mouth of Cambridge River. The Yellow-legs called every few seconds, uttering either a single or a double whistle very sweet and mellow as a rule, but sometimes given in shrill, falsetto tones. Like most of their kind they were exceedingly tame, yet rather restless and watchful. They ranged about over the mud with long, graceful strides, frequently halting and standing erect to look around and sound their whistles. Upon alighting after short flittings from place to place, they held their wings open, with the tips pointing straight upwards and nearly touching, for a moment, then folded them very deliberately and neatly. Occasionally one which had not flown would open and raise its wings over its back as if to stretch them merely. All four birds were young of the year.

During the years when I was actively engaged in shooting at Lake Umbagog, the Summer Yellow-legs appearing there did not seem to be lessening in numbers. Indeed I saw quite as many of them in the 90s as in the 70s, and in September, 1896, more were observed than in the corresponding month of any previous year. What may be their present status there at the season of migration I am unable to state.

Tringa solitaria solitaria Wilson.

Solitary Sandpiper.

Transient visitor, occurring abundantly during migration northward in spring and south-bound migration in summer and autumn.

May 14–29; July 20–October 20.

The Solitary Sandpiper is the only limicoline bird, except the Woodcock and the Spotted Sandpiper, which visits the Umbagog Region regularly and commonly in spring, when it begins to arrive from the South about the middle of May and finally departs for more northern breeding-grounds just before the close of the month, occurring most numerously about the 20th. The return migration extends over a

much longer period, beginning as early as July 20, reaching maximum proportions by the first week of August, continuing almost unabated through the remainder of that month, waning rapidly after September 1, and practically coming to an end before October, during which, however, straggling representatives of the species, invariably immature, sometimes linger in sheltered nooks, perhaps as late as the 15th or even 20th. As the Lake possesses no low-lying marshy or muddy shores which are not deeply submerged in spring, it is frequented at that season by only a few birds who must content themselves with such foothold as is to be had on small, grassy, floating islands, or on driftwood entangled among stubs and bushes. But B Meadows above the forks of Cambridge River are often freed from flood-water soon after the middle of May, and whenever this happens may attract Solitary Sandpipers in considerable numbers. According to an entry in my journal I saw them there literally in "swarms" on May 20, 1880, when, as we advanced by way of the River in a boat, they were ceaselessly rising and flitting on ahead, uttering their *peet-weet* calls, and also making a faint yet noticeable rustling sound with their wings. Thus driven they sometimes alighted, one after another, on some muddy point, until as many as seven or eight had assembled within the space of a few square feet. Nevertheless, they were for the most part paired, and the mated birds almost invariably kept together, and apart from all the rest when on wing. Two days later we visited B Meadows again, but found there only a few Solitary Sandpipers.

Although on the earlier of the two occasions just referred to we must have flushed upwards of one hundred birds, it is doubtful if half that number could then have been met with elsewhere in a day's local journeying by land or water. On August 2, 1873, I saw fully one hundred along the Androscoggin River between the Lake and Errol Dam and almost as many more, a few hours later, while going up the Magalloway River some seven or eight miles. At that date in almost any year there is, throughout the whole Umbagog Region, almost no muddy shore of pond, lake, river, lagoon, or brook, whether open to the sun or densely shaded by overhanging foliage, which is not frequented by one or more Solitary Sandpipers. Hence we may safely assume that in the region at large they are regularly present in far greater numbers during August than at any other time of year. While thus widespread at that season, the birds are by no means evenly dispersed, but on the contrary are to be encountered much more numerously about the Lake, or not far from it, than anywhere else. Here as elsewhere they prefer, to all other haunts, rather narrow stretches of

very soft, if not semiliquid, mud quite barren of vegetation, but closely approached on the one hand by lines of trees or bushes, living or dead, and bordered on the other by shallow tepid water into which they love to wade up to their bellies. Scattered along such a shore, perhaps not exceeding twenty rods in length, they may often be seen to the number of a dozen or more, searching for food industriously, but very deliberately, obtaining some of it from the surface of the mud, and some by probing after the manner of Wilson's Snipe, but more listlessly. Not less confiding than sluggish, they will usually allow a man to approach in the open to within less than a dozen yards, and sometimes he may almost lay his hands on young and inexperienced birds, while several of these may continue to gaze at him with obviously serene unconcern immediately after he has discharged his gun directly over their heads. There are times, however, especially in calm weather, when the report of a gun, or the sound of one's paddle striking against the side of a boat, will instantly startle all the Solitary Sandpipers within twenty rods, causing them to rise on wing with loud outcries, and to fly off singly, in various directions, to more or less distant places. In summer and autumn they invariably act thus independently of one another when flushed, and also when engaged in feeding, although by no means averse to assembling rather numerously where food is especially plentiful or easily obtained. In quest of it they visit the wide, treeless marshes near the Outlet and the mouth of Cambridge River in the morning and evening twilight, but it is exceptional to find many of them there at midday, at least when the sun is shining brightly. They rarely make any sound whatever while on the ground and undisturbed. When startled they are accustomed to utter a rather full, resonant *pip, pip* just before taking wing and immediately after doing so a *peet-weet* call which seems to differ from that of the Spotted Sandpiper, only in being shriller or higher pitched and commonly, if not invariably, limited to two notes at each utterance, whereas the Spotted Sandpiper habitually gives at least three in unbroken sequence. The *peet-weet* of the Solitary may, however, be repeated many times in quick succession if, on rising, the bird is much alarmed. After flying two or three hundred yards it is likely to proceed farther on its way in perfect silence, at least if such removal be accomplished in broad daylight, when the birds are not much given to performing even the shortest flights unless disturbed. For most of their local wandering on wing is undertaken in the twilight of early morning or late evening, when they love to flit from shore to shore along tree-embowered rivers, or from pool to pool over wide,

open marshes bordering on the Lake. At such hours and in such places one may hear their clear, sweet voices coming from far and near in every direction, perhaps almost without cessation for several minutes at a time.

Unlike most northern-breeding Limicolae, the Solitary Sandpiper seems to be in no haste to pass through the Umbagog Region in summer and autumn. For birds, evidently the same, may then be found day after day, or even week after week, in the same places — some being so sedentary as to linger thus on shores only a few rods in length. As a rule they increase gradually at the beginning of the season, and decrease in corresponding manner towards its close, while at its height their numbers fluctuate but slightly from day to day during a period of at least two or three weeks. Never having seen any of them migrating by day, even in lowering weather, I think they must come and go exclusively by night, probably singly. Their exceeding tameness renders them an easy prey for such gunners as care to kill them, of whom there were not many during the years when I was accustomed to shoot at the Lake, although it is to be feared that this is no longer the case. If, however, the game-laws could be more strictly enforced in the Umbagog Region, the Solitary Sandpipers would, even now, suffer comparatively little molestation there, for most of them pass on southward before the shooting season begins. When, as has occasionally happened at the Lake, I have been forced to slay a few of them for food, I have found them almost as good to eat as Wilson's Snipe. But, as they are too heedless and trustful to be worthy objects of pursuit by sportsmen, and much too attractive to be sacrificed merely because their flesh is palatable, it is to be hoped that they may soon be removed from all lists of birds that gunners of whatever kind are ever permitted to kill.

On July 30, 1866, near the Profile House, in Franconia Notch, New Hampshire, I met with a pair of adult Solitary Sandpipers which must have had young concealed somewhere in the immediate neighbourhood of the small, shallow, forest-encircled pond which they were frequenting. For when I showed myself on its muddy shore, both birds circled over and around me with vociferous cries, and repeatedly flew straight at me on a downward incline, with exceeding swiftness, sheering to one or the other side just before reaching me, but passing so close that I felt the wind of their wings on my face. Bearing this experience in mind during later years while actively engaged in collecting at Lake Umbagog, I was not without expectation of finding at least a few Solitary Sandpipers breeding there about similar woodland pools, but no such hope was ever fulfilled.

On September 9, 1880, I was watching a Solitary Sandpiper feeding on the margin of the Androscoggin River near the entrance to Leonard's Pond, when it suddenly rose on wing with loud outcry and started off over the River, pursued by a Pigeon Hawk who overhauled it rapidly. Just as it was about to be overtaken and seized, it escaped such a fate very cleverly by dropping into the water as abruptly as if it had instantly been killed by a charge of shot. The Hawk kept straight on across the River to a stump in the marsh beyond where it alighted. The Sandpiper did not dive, perhaps because it saw no necessity for so doing, but swam quickly ashore, and after landing stood crouching under an overhanging part of the bank as long as I continued to keep it in view.

Catoptrophorus semipalmatus semipalmatus (Gmelin).

Willet.

Very rare transient visitor.

In the course of some conversation with George King at the old Lake House, on the evening of September 2, 1880, I was informed by him, as my journal reminds me, that his friend Monroe Wormell of Bethel then had a mounted specimen of a Willet which he had shot at Lake Umbagog a few years before. Unfortunately I did not afterwards see the bird, nor ever question Mr. Wormell about it. Both men were favourably known to me at that time as intelligent and veracious sportsmen, familiar with most species of wading and swimming birds which frequent our New England coast. Nevertheless, the record of the Willet above referred to is perhaps too vague to be very seriously regarded, especially as my slight knowledge of it was wholly second hand.

Machetes pugnax (Linné).

Ruff.

Casual visitor in autumn.

Early in the afternoon of September 8, 1874, I was looking for Snipe in the marshes bordering Cambridge River, perhaps fifty rods to the eastward of where it empties into the Lake and very nearly where the boundary line separating Maine and New Hampshire crosses it, when my attention was attracted by a bird which I mistook at first

for a small Hawk because of its smooth, gliding flight, maintained by slow and almost effortless-seeming wing-strokes. A shot fired as it was passing me at a distance of fully sixty yards caused it to incline slightly downward and finally to fall lifeless into the grass about one hundred paces away. On picking it up I was overjoyed to find that I had killed a Ruff, or rather a Reeve, if Old World nomenclature be followed, for subsequent dissection showed that the bird was a female, evidently hatched and reared that year, in good physical condition, but not fat, and clothed in plumage literally swarming with bird-lice. Her skin is still in my collection. The specimen was originally recorded in the Bulletin of the Nuttall ornithological club (April, 1876, **1**, p. 19, 20). For the benefit of those who desire exact information concerning such matters I may add that, to the best of my recollection, the bird was seen by me only within the state of Maine, when living, although a few more wing-beats might have carried her into New Hampshire, towards which she was heading, had not my gun put a final end to her wanderings.

Actitis macularia (Linné).

Spotted Sandpiper. Teeter. Tip-up.

Common summer resident.
May 12–October 18.

The Spotted Sandpiper is the only member of the Scolopacidae besides the Woodcock that is definitely known to breed in the Umbagog Region. Throughout this there are few, if any, streams or ponds, however insignificant or circumscribed, which are not regularly frequented in summer and autumn by the familiar Tip-up. Having no aversion to forest-shaded waters and contented easily with feeding-grounds limited to narrow strips of sandy, muddy, or rocky shore, it ranges up Rapid River to Richardson Lake, up the Magalloway at least as far as Lake Parmachenee, and up the Swift Cambridge almost to Grafton Notch. It is most numerously and conspicuously represented about the shores and islands of Lake Umbagog, where the birds may be found almost everywhere, from early in May to the middle or last of September. Most of them breed on small islands, no doubt because these are comparatively seldom inhabited, or even visited, by predatory birds or mammals. In spring and early summer, Tip-ups obtain much of their food by running about over booms of logs and rafts of miscellaneous driftwood, floating in sheltered coves,

the Lake shores being then very generally submerged. After the freshets have subsided, the Sandpipers frequent or visit every remotest nook and corner about the Lake, except the grassier parts of its bordering marshes, in which they are not often seen.

For the most part they wander about singly, or in couples, and it is very unusual to meet with more than three or four together or in the same neighbourhood, even in late summer, and early autumn, when, oddly enough, they seem to be decidedly less numerous than in May or June. This decrease may be apparent, rather than real, and due mainly to their obviously wide dispersal at the close of the breeding season, but I think that there is also an early withdrawal from the region generally of adult birds, and that many, if not most, of these depart from it altogether on south-bound migration before the middle of July; for after that only a very few are ever seen, although the young are common enough for upwards of two months later, and not wholly gone before the middle of October. Being widely scattered in the shooting season and already more or less widely distrustful of man, they suffer comparatively little from gunners at Lake Umbagog. Perhaps it is for this reason that the species continues to revisit the Umbagog Region, as well as most other parts of New England, in numbers which do not seem to lessen from year to year.

Spotted Sandpipers are, as I have said, especially given to breeding on small islands in Lake Umbagog, scarce one of which is left untenanted by them at the right season or resorted to by more than a single pair. Their eggs, almost invariably four in number, are usually laid during the last week of May, in saucer-shaped hollows scraped in surface soil, and thinly lined with dry grass. After incubation has begun, the female Sandpiper may remain on them until almost trodden on by a human invader of her little domain, and then flutter close about him with shrill cries, simulating the behaviour of a wounded and frightened bird; or she may skulk away from them, silently and unseen, long before he can get anywhere near her, by the most stealthy approach. If the island be treeless and ledgy, the nest is likely to be on or near the most elevated or central part, and more or less well concealed by grass or other lowly vegetation. But if all the ground, not subject to inundation, be densely wooded, the spot where the bird has hidden her treasures is seldom far back from the shore, and perhaps scarce above high-water mark, usually where driftwood has accumulated, or beneath the leafy branch of some outstanding alder or Cassandra bush. In places such as these, it is by no means easy to find the nest, even when the total area to be searched is only a few rods

square. The task may well seem hopeless if undertaken in the open farming country about the southern end of the Lake, for, although Spotted Sandpipers breed here not uncommonly, they are so widely and sparsely distributed over hilly pastures and fields of considerable extent, that it is only by the merest chance that anybody ever stumbles on a nest. The only one that I have happened upon was well hidden in a tangle of withered grass and ferns, covering a steeply-sloping bank by the roadside. The bird drew my attention to it by flying from it as I was approaching along the road shortly after sunset on the evening of May 14, 1896. Apparently she was then at work on it, for the hollow she had made near the top of the bank looked as if it had just been excavated and contained nothing besides four or five blades of dry grass. It held a completed nest and one egg on the following evening and three eggs when I next visited it, on the 20th. The fourth and last egg was laid on May 21, the very earliest date on which I have ever known a set of Spotted Sandpiper's eggs to be completed anywhere in the Umbagog Region, or even in eastern Massachusetts.

Phaeopus hudsonicus (Latham).

HUDSONIAN CURLEW.

Very rare transient visitor in early autumn.

On the morning of September 18, 1888, during a downpour of rain driving before strong southeast wind, I was about to enter the Androscoggin River from the Lake when a Hudsonian Curlew, standing quite motionless on a bare mud-flat to the left of the Outlet, attracted my attention, after escaping that of three Bethel sportsmen who had just preceded me in their canoe. A few strokes of the paddle brought me within long gunshot of the bird. It rose on wing at the report of my first barrel, and did not stop when the second was discharged, but a single pellet of shot from one or the other had pierced its lungs and it fell dead on the river-bank after flying only twenty or thirty rods. It proved to be a female, apparently mature. I have the specimen still. No other instance of the occurrence of the species anywhere in the Umbagog Region is at present known to me.

Phaeopus borealis (J. R. Forster).

ESKIMO CURLEW. DOE BIRD.

I have never killed an Eskimo Curlew, nor am I quite certain that I have ever met with one living, although during the years that I was

accustomed to devote much of my time, at the right seasons, to shooting Bay-birds along the New England coast, I occasionally saw there, usually on wing and at rather long distances, Curlews which did not look nor whistle like Jacks (*P. hudsonius*), and which I took to be Doe Birds. One such experience happened at Lake Umbagog, on September 11, 1880. It is referred to in my journal as follows:—

An Eskimo Curlew that we saw on the mud-flats near the mouth of Cambridge River, while beating for Snipe, made several short flights and uttered a note which was absolutely different from that of the Hudsonian Curlew. This, with its small size, served to identify it satisfactorily.

It was too shy to be approached within gunshot and, if I remember rightly, it finally rose high into the air and disappeared in the distance, southward. Despite the positive character of the record just quoted from the journal, I am not now disposed to insist upon its acceptance, although I continue to believe that the bird could not well have been anything else than an Eskimo Curlew.

CHARADRIIDAE.

Squatarola squatarola cynosurae Thayer & Bangs.

BLACK-BELLIED PLOVER. BEETLE-HEAD.

Rather common transient visitor in autumn.
August 25–October 23.

The far-reaching, musically-plaintive calls of Black-bellied Plover are almost as intimately associated in my mind with camping experience at Lake Umbagog as are the laughing outcries of Loons, or the hooting of Great Horned Owls. For Beetle-heads, as gunners term them, appear there regularly and not infrequently, if only sparingly, in autumn, when, in the early morning or late evening, if not also at intervals throughout the night, one may often hear the melodious voices of birds arriving or departing on migratory journeyings, or engaged in less extended flights. Some tarry for but a single day, before passing farther southward; others remain over several successive days and nights, if not molested by gunners. Occurring singly or in couples, as a rule, and rarely if ever more than three or four together, or in the same neighbourhood, they resort to mud-flats and marshes about the Outlet, or near the mouth of Cambridge River, whenever they have occasion to alight, although by no means unknown

to settle elsewhere around the Lake on muddy, marshy, sandy, or even rocky shores, perhaps only a few yards in width. Restless and wary by nature, accustomed to spend much of their time roving about on wing, and to maintain vigilant watch for danger of every kind when feeding or resting on the ground, they take such excellent care of themselves for the most part that comparatively few are killed. To this rule there are, however, occasional exceptions. Thus a young bird, noticed early in the forenoon of September 14, 1894, running about, apparently in search of food, over a flat-topped boulder surrounded by water, but close to the wooded shore of Pine Point, was quite fearless and indeed took not the slightest seeming notice of me when I paddled up to within thirty yards and shot it. Two others of similar age that I killed on October 23, 1883, finding them feeding in company with a Pectoral Sandpiper and a couple of Wilson's Snipe on a bare, oozy flat surrounded by grass in the Outlet marshes, were almost equally sluggish and tame. A fourth, also young and met with in the same neighbourhood on September 14, 1896, behaved more after the customary manner of its kind, coursing far and wide over the marshes, frequently alighting, but never remaining more than a minute or two at rest. Sometimes it went off high in air to the southward, as if finally leaving the Lake, but after being lost to sight in the distance for several minutes, it invariably returned and pitched down again somewhere near the Outlet. Noticing that it thus visited most frequently a certain marshy point, I pushed the canoe into a little creek there and waited. Presently the Plover came over me almost out of range and flying very swiftly, but one or two pellets of No. 4 shot from my 20 gauge gun reached and brought it lifeless to the ground.

Pluvialis dominica dominica (Müller).

GOLDEN PLOVER.

Transient visitor in autumn, formerly of regular and very common occurrence.

September 1–October 26.

Golden Plover migrating southward from summer haunts in the far North were wont to visit the Umbagog Region regularly and rather plentifully not so many years ago, entering and leaving it mostly by night, but sometimes by day, especially in lowering weather. They began to arrive sparingly and singly, or not more than three or four

together, during the first week of September, and occurred most numerously and frequently between the 10th and 30th of the month, when they were often met with in good-sized flocks of which those observed before the 20th were largely if not wholly composed of adult birds, those coming later of young. The heaviest flights seemed likely to pass during, or just before, northeasterly rain-storms, but very many birds appeared in calm and brilliantly-clear weather. They might be seen and heard on wing almost anywhere about the Lake, but were unknown to settle elsewhere than in the immediate neighbourhood of the Outlet, or of the mouth of Cambridge River, where they often alighted on bare stretches of mud or sand, to feed or rest, but seldom or never tarried for more than a single day, even when unmolested. The gunners, of course, sought them eagerly and persistently because of the superior quality of their flesh which, without question, is tenderer and more exquisitely flavoured than that of any other bird found in New England excepting, perhaps, Upland Plover and Eskimo Curlew. Although easily approached at first, even where there was little or no cover, they were commonly so widely scattered when on the ground, so quick to take alarm when shot at, and so given to departing altogether when thus disturbed, that the sportsmen rarely got very many of them. Being unaccustomed to remain near the Lake overnight they did not, like Beetle-heads, wander about there much after dark, although often making restless and protracted non-migratory flights in the morning and evening twilight and indulging in them still more freely by day. While thus engaged they habitually flew faster than any of the other Waders and perhaps more swiftly than any of the Ducks except the Hooded Merganser. Their long, pointed wings, lifting high and cutting deep at each stroke, beat rapidly and ceaselessly, yet so easily and smoothly as to indicate comparatively slight muscular effort. If they happened to pass near at hand or overhead their flight was likely to impress one as having not only exceeding speed but irresistible momentum, also as of solid projectiles, hurtling through the air. Seen at a distance they appeared to be moving more slowly and looked not unlike Passenger Pigeons. At all times when on wing, whether singly or in flocks, they were accustomed to give every few seconds one of the familiar calls which veteran coastwise gunners so love to hear and imitate. The commonest of these was a two-syllabled, whistling, or rather squealing, cry, so shrill, insistent, and monotonous as to be decidedly unpleasing, at least to my ears. A more subdued, prolonged, and rolling whistle, less often heard, seemed not unmelodious.

The foregoing generalizations are based almost wholly on personal observations of Golden Plover at Lake Umbagog. A few of the field-experiences to which they relate seem worth giving, in full, essentially as they were originally described in journal or note-books, and are as follows:—

1880, September 14.— On a broad bar of smooth, wet mud at the mouth of Cambridge River we found four adult Golden Plover, early this forenoon. They were moving about much after the manner of Robins, and still more like Semipalmated Plover, by successive short, swift runs, made in varying directions; between these runs the birds invariably paused for at least several seconds, either to stand stiffly erect and motionless, like so many wooden decoys, or to bend forward and downward very deliberately, with admirable ease and grace, as they picked up morsels of food from the surface of the ground. While standing thus and facing us they showed the black feathers on their under parts very conspicuously, but when they presented their backs and remained immovable it was easy to overlook them altogether. The near approach of our boat failed to attract their attention. Sitting quietly in it we watched them for a considerable length of time, until at length they drew together, when I killed three at one shot, and the fourth a moment later as it passed on wing. The day was cloudy and misty with strong easterly wind, presaging an approaching storm.

1880, September 15.— The northeasterly storm gathering yesterday broke last night, and raged through the whole of to-day. It was accompanied not only by violent wind and incessant heavy rain, but also by a flight of northern-breeding, south-bound Waders and water-fowl of various kinds, the like of which I have never before witnessed at the Lake. In pursuit of these Alva Coolidge and I were on the River or in the marshes from daylight to dark. Early in the day we visited the mud-bar at the mouth of the Cambridge finding there eleven Golden Plover, four Phalaropes, (three Red and one Northern), and innumerable Semipalmated Sandpipers. As the Phalaropes seemed most desirable they were dealt with first and secured with a few shots. Being only about one hundred yards away, the Plover were manifestly much disturbed by this firing, but it did not cause any of them to take wing. Nor did they display anything more than slight uneasiness when closely approached a little later. Like those met with yesterday in the same place, they were all adult birds, two of which, standing near together, were slain on the mud by my first barrel, while my second brought down a third bird from on wing. Now thoroughly alarmed the eight remaining members of the flock did not tarry long, but after wheeling once or twice flew swiftly off and were seen no more.

1887, September 29.— A warm, cloudless day following a chill, densely foggy morning. Early in the forenoon we found nine Golden Plover on a broad expanse of soft, deep mud at the southern extremity of Moose Point. Scattered about and feeding busily, they showed not the slightest alarm, or even suspicion as we drew near them in our boat, over the open Lake. After watching them

awhile I got two together, and killed both with a single charge of shot. The seven survivors flew across the water to the Outlet, and settled there on an extensive mud-flat where, as we ascertained by following them, they joined other and more numerous Plover of the same species. The members of this combined flock, now twenty-five or thirty in number, seemed restless and uneasy, alternately rising and realighting in the same place, every few minutes. Before we could get near them they flew off out of sight, and at a considerable height, towards the westward leaving, however, a single bird behind which I shot. All the others were back on the flat again when we approached it an hour or so later. Paddling quietly towards it until the boat grounded, we had them close about us on three sides, running hither and thither, for five or ten minutes, yet without once getting two near together, or in line. At length I shot one on the mud, and another as it started to fly. The rest mounted high in air and again departed, this time finally and no doubt on south-bound migration. A Pectoral Sandpiper accompanied them.

1890, October 6.— A Golden Plover that I shot to-day was perched on a stump in a marsh near the Outlet.

1894, September 10.— About nine o'clock this morning four Golden Plover, all young birds as I could plainly see with the aid of my field-glass, were flying about, now high, next low, over the Outlet marshes, calling loudly. Presently one separated from the rest and alighted, but soon rose again and during the remainder of the forenoon kept almost ceaselessly on wing within my sight, or hearing. What became of the others I do not know.

1896, September 7.— While watching a Golden Plover flying about high over the Lake this afternoon, I saw it swoop suddenly down at a Nighthawk, passing at a lower level, and almost strike it with stiff-set wings. If, as seemed to be the case, the Plover was merely seeking diversion, it must have been not a little gratified by the discomfiture shown by the Nighthawk, when thus unexpectedly attacked.

Inasmuch as Golden Plover have well-nigh ceased of late to appear anywhere along the New England coast, it is to be feared that they no longer visit the Umbagog Region. I noted them there for the last time in September, 1898, when four birds were seen at Moose Point on the 22d of the month, and four (which may have been the same) in the same place on the 23d, another bird being heard on the 24th. My records for several closely-preceding years are as follows:— 1897 — Four birds seen on September 5, others heard on the 10th and 20th. 1896 — Two seen on September 7, one on the 10th. 1895 — Six birds seen together on September 12, one seen on the 18th. 1894— Several birds heard on September 9, four seen on the 10th, one heard on the 12th, one seen on the 25th.

Oxyechus vociferus vociferus (Linné).

KILLDEER PLOVER. KILLDEER.

Casual visitor in autumn.

The only Killdeer that I have ever seen or heard of in the Umbagog Region was a noisy, shy, and restless bird, met with on October 2, 1894, at the Outlet of the Lake. When first noticed it was flying high over the marshes in company with six Pectoral Sandpipers. Separating from these it alighted, shortly afterwards, on a bare mud-flat where it began running about and feeding. Here I attempted to stalk and shoot it, but it was too wary to let me get within fair gun-range, and soon flew across the Androscoggin to settle again in the marshes beyond, where I pursued it for sometime longer with no better success. Whenever it rose it made a loud outcry of the familiar *kill-dèer* notes and continued to utter them at frequent intervals as long as it remained on wing. At length it left the marshes altogether, and flew off southward over the Lake until lost to sight in the distance.

Charadrius semipalmatus (Bonaparte).

SEMIPALMATED PLOVER. RING-NECKED PLOVER. RING-NECK.

Transient visitor in late summer and early autumn, formerly of numerous, still of common, occurrence.

June 22; July 19–October 9.

Semipalmated Plover or Ring-necks, as gunners call them everywhere, were common enough at Lake Umbagog thirty or forty years ago. One might then see them almost daily, for weeks in succession, at the right times and places. Beginning to arrive from farther north before the end of July, they occurred most numerously in August, and early September, diminishing rapidly in numbers towards the close of the latter month, and disappearing altogether soon after, if not just before, the 1st of October. At the height of the migration they came and went by day, as well as by night, at least in rainy or lowering weather, when I have sometimes seen them approach from the northward and keep on southward without stopping, but not without circling low over the marshes, as if seeking a congenial place to alight, and failing to find it. Most of them seemed content, however, to devote at least the greater part of a day to feeding or resting on muddy bars, flats, or shores somewhere about the Lake, preferring to

all others those near the mouth of Cambridge River and about the Outlet. Nor was it unusual for birds, evidently the same, to reappear in the same places day after day for perhaps upwards of a week, provided no one shot at them, which was unlikely to happen, for few gunners troubled them at the time of which I am now writing. When lingering thus they were accustomed to roam about on wing for awhile at evening, over lake or marshes, sounding their sweet, plaintive calls, now here, next there, in the gathering twilight, finally alighting and settling down for the night, perhaps near the spot whence they had flown. At least I have repeatedly observed them standing motionless, singly or in clustering groups, on some mud-bar to which they had thus returned, keeping them in view until it was too dark to see them longer and finding them all there the next morning.

During the earlier years we occasionally met with Ring-necks in flocks numbering twenty-five or thirty, or even as many as forty or fifty members each, but ordinarily no more than ten or a dozen were found together. Being at all times socially inclined towards small Waders of other species they consorted freely with such of those as they happened to encounter about the shores of the Lake. Such association was practised oftenest with Semipalmated Sandpipers, perhaps because they were more numerously represented than any of the rest, at least in places frequented by the Plover. Once established it seemed to be rather lasting, for after feeding with them on the ground the Ring-necks almost always accompanied the Sandpipers on wing, usually keeping somewhat in advance of them, however. Thus leading the way they might course and double far and near, over marsh and lake and perhaps leave the region altogether in broad daylight, going off to the southward over Upton Hill, still followed by a stream of little Peeps trailing out behind.

The violent northeast storm, mentioned in connection with what I have written about Golden Plover, that occurred at Lake Umbagog on September 14–15, 1880, brought with it an exceptional flight of Ring-necked Plover and Semipalmated Sandpipers. Both species, during both days, appeared together, at the mouth of Cambridge River and in the adjacent marshes, in about equal abundance and very numerously. Indeed I have never seen anything like so many, within the same space of time before or since, either there or elsewhere about the Lake. Both Ring-necks and Peeps began to diminish appreciably in numbers soon after 1890 and have since continued to do so, no doubt because of constantly-increasing persecution on the part of ever-multiplying gunners. In 1896 I saw in all only twenty-

three Ring-necks at the Lake during the entire month of September. During my last autumnal visit, made in September, 1900, but two birds were seen, on the 10th of the month. In 1909 I found a solitary Ring-neck running about on the margin of a flooded river-meadow near the old Lake House on June 22, a date wholly without precedent in my experience. Whether this bird was a belated north-bound migrant, or a prematurely early south-bound one, or what gunners term a "pensioner," that is a barren or slightly wounded bird, disinclined or unable for this reason to go farther north, I cannot say.

APHRIZIDAE.

Arenaria interpres morinella (Linné).

RUDDY TURNSTONE. TURNSTONE.

Rare transient visitor in late summer and early autumn.
August 27–September 5.

My experience would seem to indicate that the Ruddy Turnstone appears in the Umbagog Region only about the shores of the Lake and there but rarely. Indeed I have known it to occur on only three occasions, referred to as follows in the journal:—

1880, SEPTEMBER 2.— On this date a Turnstone was killed near the Outlet of Lake Umbagog by George King. If I remember rightly he showed me the bird that same evening, although my notes do not so state.

1880, SEPTEMBER 8.— Early this afternoon I noticed a Turnstone standing leg-deep in shallow water on the edge of a mud-bar at the mouth of Cambridge River. The only other birds in sight were a few Semipalmated Plover, running about on the mud upwards of twenty rods away. On shooting and dissecting the Turnstone I found that it was a young female. The specimen is in my collection.

1896, AUGUST 27.— As I was paddling out of the little cove on the south side of Pine Point, shortly before sunset, two Turnstones came flying past, uttering their rolling, throaty, whistling calls. Alighting near the end of the Point they began running about over and among some large boulders at the water's edge. I shot one here, and the other farther along the same rocky shore. Both proved to be young birds whose skins I preserved.

TETRAONIDAE.

Canachites canadensis canace (Linné).

CANADIAN SPRUCE GROUSE. SPRUCE PARTRIDGE.

Permanent resident, more or less common locally.

Of all birds hunted for sport and food in the Umbagog Region, and not uncommon there, the Spruce Grouse is decidedly the most retiring and the least well known. A forest recluse, and within the forest chiefly confined to places either remote or difficult of access, it is comparatively seldom met with by sportsmen or ornithologists. Even the native hunters and trappers who, of course, encounter it oftenest, possess but imperfect knowledge of its habits, and very few among them have ever heard it drum or seen its nest and eggs. Yet it occurs regularly and more or less numerously at every season, and has done so since time immemorial, in two localities near the settlements at the southern end of Lake Umbagog, one of these being the Tyler Bog, lying within a mile of the old Lake House in Upton, Maine, where sportsmen, ornithologists, and guides were wont to congregate in the 70s and 80s, while the other on Mollidgewauk Stream, in the township of Cambridge, New Hampshire, is scarce more distant from Lakeside Hotel, which has replaced the Lake House in popular favour since 1890. Elsewhere in the region, Spruce Partridges have been found, to my knowledge, within comparatively recent years, just to the northward of Grafton Notch in the valley of the Swift Cambridge River, in that of the Dead Cambridge above the Sluice, about B Pond, along the Carry Road leading from Lake Umbagog to Richardson Lake, and in various places along the Magalloway River between Aziscohos Falls and Lake Parmachenee. For the most part the birds frequent dense, matted growths of cedar (*i.e.* arbor vitae), black spruce, and hackmatack (American larch), overspreading, low-lying, flat, and more or less swampy lands bordering on sluggish streams or on semiopen bogs similar to those known as Muskegs in the far North. From such coverts they wander not infrequently up neighbouring hillsides to evergreen forests on still higher ground beyond, or perhaps into neglected pastures choked with intermingling young balsams, red spruces, and white spruces no more than eight or ten feet tall. Nor are they unknown to appear well out in rather wide upland clearings, where the only available cover consists of thickets of raspberry bushes, or even in river- or brook-meadows, where it is furnished solely by rank

grass. Ramblings, thus venturesome, are exceptional, of course, and undertaken I believe, at no seasons other than late summer and early autumn, when the lowly vegetation that clothes such perfectly treeless ground is most luxuriant, and also best supplied with berries or insects of various kinds; these Spruce Partridges devour eagerly whenever, and wherever, they can obtain them readily, although subsisting during the greater part of the year on a nearly unmixed diet of spruce and balsam spills [leaves], plucked mostly from branches at least fifteen or twenty feet above the ground. Everywhere in the Umbagog Region the birds vary greatly in numbers from time to time, sometimes continuing to multiply during several successive seasons, probably when the weather and other conditions especially favour the hatching and rearing of their young, until they become locally common, if not actually abundant; then will follow a longer or shorter period of scarcity, perhaps so general and extreme that the species seems brought perilously near local extinction. Such numerical fluctuations are doubtless governed by influences with which man has little if anything to do. For they are no less prevalent in places which he seldom or never visits, than in those which he oftener frequents. Even in their best-known haunts, lying nearest the settlements, the birds are comparatively little hunted and seldom shot, chiefly because they are generally, but mistakenly, considered unfit for food, and also because it is difficult and troublesome to find them in the dense and boggy coverts which they most affect. Whenever I have sought for them diligently and systematically in any of their characteristic places of resort, the quest has almost always proved unavailing, even where unmistakable signs of their recent presence, such as recently-dropped feathers or excrement, or the saucer-shaped depressions in which they had taken dust-baths on dry earthy mounds, were to be seen in almost every little sunny opening. At first I was unable to understand how birds, evidently rather numerous and naturally fearless of man, could so easily manage to escape observation, but subsequent experience led me finally to conclude that some were passed within a few yards, yet overlooked because they remained motionless on the ground in dense thickets or perched on branches among luxuriant evergreen foliage, while others may well have been roaming elsewhere at that particular time. If their chosen haunts were invaded late in May or early June, perhaps with faint hopes that a nest and eggs might be found, the undertaking was sure to prove especially irksome and disheartening because of the tortures inflicted by mosquitoes and black-flies, which rose in clouds from slimy pools through which, every now and then, one had to flounder knee-

deep in water and mud. Although repeated expeditions of this kind, made at various seasons, sometimes alone, sometimes under the guidance of keen-eyed native hunters, seldom afforded so much as a glimpse at a bird, and never were rewarded by the discovery of a single nest, I used to meet with Spruce Partridges not far from the Lake on other and not infrequent occasions when looking for something else. This happened oftenest during the 70s and 80s when I was accustomed to make prolonged stays at the Lake House and in its neighbourhood to collect specimens, or shoot game-birds, according as the season or weather favoured the one or the other pursuit, usually in company with one or another of the various ornithological friends whose names appear elsewhere in the present work. The Tyler Bog was then crossed, as it is still, by a rough corduroy road two or three hundred yards in length, over which we frequently passed to and from boundless upland forests beyond and along which Spruce Partridges were every now and then encountered, usually well within the Bog itself, but sometimes on the lower slopes of the steep ridges that hemmed it in on either hand. Some birds, standing or moving conspicuously in the middle of the road, were sighted far in advance; others remained motionless, and unnoticed until almost stepped on in bordering thickets which we were searching for nests, or for some Thrush or Warbler, which had just been shot; still others, perched in trees, attracted our attention in one way or another as we were passing beneath them. During the earlier years when guides and hunters were coming and going almost daily from and to Rapid River and Richardson Lake along the old Tyler Road, it was by no means uncommon for one of these men to appear at the Lake House carrying under his arm, or in his satchel, a living Spruce Grouse which he had just caught in the Bog by slipping a noose of common white twine over the bird's head. We were assured that this is ordinarily easy of accomplishment, and that the pole to which the noose is attached need not exceed four or five feet in length. Several of the specimens thus captured and shown to me were adult birds and one taken in early June, was, I regret to say, a female brought in with one of her chicks which could not have been more than four or five days old.

Two or three of my personal experiences with Spruce Grouse in or near the Tyler Bog are thus briefly described in the journal:—

1874, August 28.— Walking along the Tyler Road just beyond the Bog this afternoon, and happening to glance upward, I perceived two young, but fully-grown, Spruce Partridges among the branches of a small hackmatack, one standing rather erect with outstretched neck, the other squatting close on its

perch with head drawn in. Silhouetted against the sky, yet partly and most attractively veiled by the tender green foliage all about them, they remained perfectly motionless until at length I shot one, when the other instantly took wing, and was missed by my second barrel while whirring off through the tree-tops. The bird I got had filled its crop with hackmatack spills.

1874, September 4.— While crossing the Tyler Bog this morning I shot a Thrush among some hackmatacks, and leaving the road to pick it up, came suddenly upon an old cock Spruce Grouse. Never have I seen one to better advantage. He was standing perfectly motionless within a few yards of me, on a little mound, amid thickly clustering plants of dwarf cornel, whose ripening berries were no brighter coral-red than the bare linear spaces above his hazel eyes. Every now and then a shaft of sunlight, penetrating through dense foliage overhead, played for an instant over the rich, dark plumage of his upper parts. I gazed at him long and admiringly before shooting him for a specimen.

1876, June 14.— Almost at the top of the long, steep slope by which the Tyler Road descends to the Bog from the westward through heavy spruce and hemlock timber I came upon a fine cock Spruce Grouse this morning. When first seen he was in the middle of the road a few rods in advance. A moment later he fluttered up rather clumsily into a low alder. Approaching him closely I stood regarding him for a few minutes, during which he held his tail raised, and pointing well upwards, although its long under coverts hung loosely downwards, being doubtless less subject to muscular control than the stiff rectrices. Whenever he turned his head the movement was singularly slow and measured, as if regulated by automatic machinery. The red spaces over his eyes were very vivid and conspicuous. At length I wheeled about and started to walk away when, to my surprise, he instantly followed me on wing flying directly towards me along the road and actually alighting scarce two yards behind my retreating heels. But when I again faced him he skulked off into the bushes, and then flew up to a low branch. His unusual behaviour led me to suspect that he might have a mate sitting on her eggs near at hand, but if this were really so I failed to find her, although all the more likely places in the immediate neighbourhood were carefully searched.

Other entries in the journal remind me that it was not always necessary to go as far from the Lake House as to the Tyler Bog in order to meet with Spruce Grouse. Within sight of the house, and not over forty rods from Abbott's Mill, in an opening thickly overgrown with widespreading spruces and balsams, then only twelve or fifteen feet tall, I flushed a mother bird with her brood from a bed of ferns on July 28, 1874. The young, six in number and about as large as full-grown Bob-whites, rose with a dull, whirring sound to the tops of the nearest balsams where they sat watching me, uttering every now and then a low, piping whistle. The old hen also alighted in a near by fir where she called *kruck, kruck, kr-r-r-r-uck*, almost incessantly.

Approaching her cautiously I actually got near enough to reach up and prod her in the breast with the muzzle of my gun when she flew swiftly, whirring loudly, to another small evergreen and allowed me to approach her quite as closely a second time. After I had withdrawn a short distance, she renewed her calling which was answered by the shriller, feebler voices of the young. Shortly after this she flew back to them. They looked and behaved not unlike young Ruffed Grouse of corresponding age. Although coveting the skins of all of them for my collection, I contented myself with but one, leaving the others in peace. They were again found in the same cover three days later, (July 31), when I watched them for sometime without again molesting any of them. One, the biggest of the brood, strutted slowly out along a spruce branch, carrying his stubby tail erect and widespread like a young Turkey cock, and calling all the while in nearly the same gutteral tones as those of his mother.

Rather early in the morning of May 24, 1879, I was reclining on the ground in some old-growth woods which then covered the crest of a low hill immediately behind the Lake House when I happened to espy a female Spruce Grouse twenty or thirty feet above me standing erect and motionless, close to the main trunk of a large red spruce. A few moments later she walked deliberately out on a long branch almost to its extremity, and began to feed, picking off the spruce spills with quick, nervous movements of head and neck. She now appeared unmindful of my presence, although her immobility when first noticed indicated that she then regarded me with more or less distrust. Shortly after this I left her to complete her unattractive-seeming breakfast.

As I have already said, Spruce Grouse occasionally wander out into perfectly treeless places. Two of the most striking instances of this habit which have ever come under my observation are referred to as follows in notes written at the time:—

1874, August 20.— About a quarter of a mile from the Lake House, at the foot of Upton Hill, I flushed an old hen Spruce Partridge, early this afternoon, in an open pasture fully one hundred yards from the nearest woods, which were wholly composed of deciduous trees. Heading straight for them, after suddenly bursting out of a thicket of raspberry bushes several paces in advance of me, she flew low over the ground, as swiftly as any Ruffed Grouse, and with similarly loud whirring sound of wings, but slightly if at all scathed by a charge of dust shot that I sent after her. Marking the spot where she entered the cover I presently found and killed her only a few yards farther in, as she was standing on a prostrate log.

1888, September 11.— Leaving our camp at the Sluice about seven o'clock this morning, Luman Sargent and I started up Cambridge River in a boat.

After paddling rather more than a mile and coming to a place where the River winds through open meadows upwards of twenty rods in breadth, I landed with my pointer "Don," thinking he might find one or two Wilson's Snipe. This expectation seemed likely to be realized a few minutes later, when he suddenly came to a staunch point in a bed of tall grass, fully thirty yards from the nearest point where outlying trees and bushes marked the dividing line between the meadow and slightly more elevated ground. Stepping in ahead of the dog, with gun held cocked and ready, prepared to level it either at a squeaking, tweeting Snipe or a silent, fluttering Rail, I was not a little surprised to flush five Spruce Partridges almost underfoot. Rising all at once like Quail, from within a space no more than two yards square, with what seemed a deafening roar of wings, they sped straight for the woods, flying precisely like Ruffed Grouse and quite as swiftly. One fell to my first barrel, and another was missed by my second. The gun was recharged just in time to bring down a sixth bird which rose perhaps a minute after the rest. With Luman, who had now joined me, I followed the remaining four Spruce Partridges into the woods where three were soon found and killed. One that had settled on the ground was tracked by "Don" to a prostrate log, and pointed there. The other two had alighted in trees, one low down on the dead branch of a living balsam, the other at a height of forty feet, near the top of a red spruce. This last bird, an immature male, uttered, every few seconds, a low, wailing whistle, *weeo-weeo-weeo*, that reminded me of the call of a half-grown Bob-white. It kept moving its head up and down slightly while thus whistling as did the bird in the balsam, without emitting any sound. Both crouched low on their perches with necks outstretched. One of the birds shot in the meadow fell broken-winged into the grass whence it emerged, a few moments later, hopping up on a water-soaked log where it stood jerking up its tail and clucking not unlike a Ruffed Grouse, but in rougher, hoarser tones. As one of the Spruce Grouse met with on this occasion escaped us, I cannot testify respecting its age. The other five were young almost fully grown, but still in immature plumage. On dissecting them I found in their crops very many grasshoppers of various kinds and sizes, numerous ripe raspberries, a few leaves of *Spiraea tomentosa* and (in one crop only) a few larch spills. Three birds were skinned for museum specimens. The other two, cooked and served at our camp that evening, proved delicious eating, their flesh being much sweeter and finer flavoured than that of any Ruffed Grouse. Both before and after cooking it was nearly as white as the Ruffed Grouse's, whereas the fully-matured Spruce Grouse has invariably dull reddish flesh somewhat too redolent of spruce foliage to be relished by everyone, although I do not dislike it. The flesh of at least some of the young becomes, almost, if not quite, as dark as that of the adults, by the last of September.

In this connection it may be well to add that in the crops of two young Spruce Grouse only about half-grown and killed in the Tyler Bog on August 13, 1873, I found raspberries, blueberries, checker-

berries, and balsam *buds* as well as needles; that from the crop of an adult female shot near Mollidgewauk Stream on September 28, 1890, I took fifty-one berries of *Viburnum lentago?*, some fragments of small mushrooms, and a few spills of the black spruce; and that a young male found and killed in company with the old female just mentioned had in his crop thirteen Viburnum berries, uncounted pieces of mushrooms, and a few larch spills. Hence it will appear that food of various kinds other than that supplied by the foliage of coniferous trees is partaken of rather freely by Spruce Grouse in late summer and early autumn.

William Peaslee, an exceptionally intelligent and trustworthy man, who formerly lived not far from the Lake House, at the foot of Upton Hill, once gave me an interesting account of some young Spruce Partridges which he had had in captivity a few years before. Four were caught when about one quarter grown. One died shortly afterwards, but the others throve and grew apace, becoming very tame. When turned loose from the box, in which they were ordinarily confined, to feed about the door-yard with domestic fowl, they did not attempt to wander off, nor was there ever any difficulty in recapturing them by hand. They ate bread, curds, and insects of almost every kind, being especially fond of house-flies. It became a favourite amusement with the members of Mr. Peaslee's family to take one or another of them about a room where flies were clinging to the ceiling, for when held near these the little Grouse would peck at them eagerly, and secure very many of them.

Although I have spent many a spring morning in woods where Spruce Partridges were known to be breeding, it has never been my good fortune to see, or perhaps even hear, one drum. Nor have more than a very few trustworthy guides and hunters of my acquaintance, past and present, ever actually witnessed the act of drumming. As will presently appear, their testimony regarding it is somewhat at variance which, perhaps, is not greatly to be wondered at, in view of the similar differences of opinion which have so long existed respecting the drumming of the Ruffed Grouse. My second-hand information relating to the drumming of the Spruce Grouse was written down, when obtained, in nearly the following words:—

1872, June.— Gideon Stone, who has lived for many years on the shores of Lake Umbagog, assures me that he has frequently seen Spruce Partridges drum, and thus describes the performance. Springing from the ground on rapidly-beating wings, the cock bird mounts at an angle of about 45° to one of the lower branches of some neighbouring tree where, at a height of perhaps ten or twelve feet, he perches for a few moments, and then returns to the earth by

similar flight, down a corresponding incline. During such descent as well as ascent his wings produce a sound much like that of a drumming Ruffed Grouse, but shorter, more hurried, and without any preliminary, disconnected thuds. It is also less loud, although in calm weather it may be heard at a considerable distance.

1884, October 25.— Oddly differing accounts of the manner in which the Spruce Grouse drum have just been given me by two Upton guides of unimpeachable veracity, viz., Luman Sargent and Alva Coolidge. Luman's story is as follows: — Many years ago he was skirting a dense swamp, when his attention was attracted by a peculiar whirring sound that came from it. Advancing cautiously he soon perceived two Spruce Partridges, cock and hen, together on the ground. The cock left it presently, and vibrating his wings with great rapidity began mounting upward in a spiral course around the trunk of a large balsam, producing all the while a continuous drumming sound. After rising to a height of about twenty feet, and making three or four complete turns around the stem of the tree, he alighted on one of its branches where he rested for a moment or two and then flew down just as he had risen, that is by circling spirally around the trunk, with the same uninterrupted sound of wings. On reaching the spot where he had left his mate, he strutted about her like a Turkey cock, with widespread tail. Luman saw all this repeated fifteen or twenty times. For the first ten feet above its base the trunk of the balsam was smooth and bare, but above that the Partridge had to conduct his drumming flights, both upward and downward, through numerous stiff branches. The sound of his drumming was distinctly audible at least fifty yards away.

Alva's experience also happened rather long ago, certainly in autumn, and he thinks either in September or October, when, during a shooting excursion over some burnt lands near Mollidgewauk Stream, he met with a pair of Spruce Partridges in a tamarack swamp. Here he repeatedly saw the male fly up from the ground in an ordinary manner, with no more than the usual amount and kind of whirring which accompanies normal flight, to perch beside the female for a moment on the branch of a larch. But every time he left her and returned to the ground he flew down at a uniform angle, about 45°, with legs dangling, tail depressed, and excessively-rapid wing-beats, yet moving scarce faster than a Rail and looking not unlike one of gigantic size. While descending thus, but not once during any ascent, his wings made a peculiar sound not unlike the muffled roll that terminates the drumming of the Ruffed Grouse, but less deep and throbbing. Upon reaching the ground he would run over it very quickly for a distance of several yards, with drooping wings and widespread tail. After watching all this repeatedly Alva shot both birds.

It seems not a little remarkable that two men so intelligent, so deeply interested in all wild animal life and so very familiar with

almost everything that happens often in the forests of northern New England, could have spent so large a part of their lives in these and yet have seen the Spruce Grouse drum on only one occasion. If I am not greatly mistaken the sound of its drumming came repeatedly to my ears in the Tyler Bog on the morning of June 12, 1909. For what I then heard was precisely what they have described. But as I failed to trace it to its source I cannot certainly affirm that a Spruce Partridge was the author of it.

After searching long and fruitlessly at the Lake for nests of Spruce Grouse, I finally offered a liberal reward for one containing eggs, thereby departing from my usual custom which was to rest content with such spoils of collecting as were obtainable through personal field-work, unassisted save by guides and friends who shared directly in it from time to time. For material thus secured had greater value and interest in my eyes than any other. Moreover, I felt disinclined to encourage the indiscriminate taking of birds and eggs by local hunters, although exceptionally rare specimens brought in by these were sometimes purchased. The above-mentioned offer never resulted in advantage to anyone, although promising to do so on one occasion in early June, when a river-driver who had heard of it reported to me at the Lake House that while following some logs down the Swift Cambridge a day or two before, he had found a Spruce Partridge's nest containing five or six eggs, on the banks of this stream not far above where it is crossed by the road leading from Upton to Andover, Maine. He seemed, and was reputed to be, an honest fellow, apparently eager to win the promised reward, while his description of the bird and eggs indicated that no mistake had been made in respect to their identification. But after agreeing to take me to the nest on the following Sunday, his first free day, he failed to keep the appointment, and one afterwards made for the next Sunday, was similarly disregarded. Hence I was forced to conclude that either his story was wholly without foundation in fact, or that by revisiting the nest alone he had ascertained that it belonged to a Ruffed Grouse. The trouble of reaching it again could not have had anything to do with the matter, for we might have driven almost to the spot, over good roads, in less than half an hour.

Aldana Brooks of Upton, a guide in whose statements respecting such matters I place full confidence, informed me in 1890 that about June 1 of the then immediately preceding year, (1889), he had happened upon a nest of the Spruce Partridge not far from the shore of Richardson Lake, where the land was low and wooded with black ash,

birch, alder, and a few larches. It was sunk, he said, in the top of a little mound with no rock, log, or even tree-trunk very near it. There were nine eggs. The bird did not leave them until almost stepped on, when she fluttered off over the ground for a few yards, and then stopped to watch Brooks who finally continued on his way without molesting her, or taking any of the eggs, which he never saw again.

During my earlier visits to the Lake House, Horatio R. Godwin who then kept it and was a man of unquestioned veracity, often referred to a nest of the Spruce Partridge which he had seen several years before, probably in 1868 or 1869. Unfortunately I have preserved no definite record of this nest. To the best of my recollection it was found in or near the Tyler Bog and contained only five eggs, which were not taken.

The only nest and eggs of the Spruce Grouse which, to my knowledge, have ever been collected by anyone in the Umbagog Region were taken not far from B Pond in Upton, Maine, on May 24, 1901, by Colonel John E. Thayer. His guide, Alva Coolidge, found the nest under a little balsam, on the crest of a wooded knoll, by the side of a trail that leads to the Pond from the old Lake House. As all of the six eggs which it contained were slightly incubated, the set was probably complete. Shortly after returning to Lancaster, Massachusetts, with these treasures, Colonel Thayer insisted on giving them to me, despite my earnest remonstrance, and although they must have seemed even more precious in his eyes than they did in mine, because of his own collecting. The presence of the beautiful eggs in my collection is not needed, of course, to remind any one of the characteristic and simply boundless generosity of him to whom I am indebted for them.

As far as I am able to judge, the Spruce Grouse which inhabit the Umbagog Region have not as yet begun to diminish permanently in numbers, although subject to marked and very considerable numerical fluctuations from time to time. In 1889 they were more abundant than I have ever known them to be before or since. In 1897, only a very few were reported. On May 29 of the latter year my assistant, C. H. Watrous, came upon a female in a spruce-grown pasture on the Gibbs farm near the Narrows of Lake Umbagog, where she may have had a nest and eggs hard by. As lately as the year 1903 no less than four different hens were seen by Alva Coolidge within two or three miles of the Lake House. It would therefore appear that the species is in no immediate danger of local extinction. No doubt it will continue to repopulate its characteristic haunts as long as they remain unchanged. In them it is perhaps less subject now to human molesta-

tion than it was formerly when they were oftener invaded by hardy, persistent hunters and trappers, seeking Caribou or fur-bearing animals. Whether or not it suffers much from the depredation of predacious, forest-haunting creatures other than man, I do not know. One would think that a bird so tame and defenceless must fall an easy victim to such Raptores as Goshawks and Great Horned Owls. Being decidedly more arboreal of habit than the Ruffed Grouse, it is probably less often preyed on by Foxes and other terrestrial mammals.

Bonasa umbellus togata (Linné).

Canadian Ruffed Grouse. Birch Partridge. Partridge.

Permanent resident, generally distributed in numbers varying greatly from year to year.

The Canadian Ruffed Grouse is familiarly known to everyone in the Umbagog Region as the Birch Partridge or Partridge (commonly pronounced *Pàtridge*). Ranging from the lowest levels to the crests of the higher mountains it occurs practically everywhere, although seen comparatively seldom among heavy, unmixed spruce timber, and still more rarely in the larch and arbor vitae swamps, so beloved by Spruce Grouse. It likes best to dwell in woods composed of intermingling evergreen and deciduous trees. Far back in these it is found oftenest about deserted lumber camps, and along old logging roads, where enough sunlight has been let in to stimulate a vigorous growth of underbrush; or along the courses of alder-fringed brooks or runs, where ferns flourish in rich, moist soil; or on river-banks freely exposed to the sun, but densely overgrown with cornels, Viburnums, and other berry-bearing shrubs. Near permanent settlements it is given to frequenting wood edges, neglected pastures, and the outskirts of crudely-tilled farms, where young spruces, balsams, birches, maples, and alders have been permitted to spring up in crowded thickets about sunny little openings filled with tall bracken. The birds are here reasonably safe from human molestation, except in autumn when everyone possessed of a gun bags as many of them as he possibly can. In the depths of the forest, woodsmen prospecting for timber, or looking for spruce gum, or trapping Sable, Mink, and other fur-bearing animals, seldom trouble themselves much about the game-laws, when opportunity offers to kill a Birch Partridge, and feast on its delicious flesh about a camp-fire. Nor is the Goshawk, the Great Horned Owl, the Fox, and doubtless many another predaceous creature more mind-

ful of open and closed seasons, if a Partridge can be caught unawares and done to death with talon or fang. But from the obvious depredations of all such foes including man, the Ruffed Grouse probably suffers far less than from the insidious attacks of wood-ticks which, in early summer, fasten on the heads of young birds and quickly kill them, probably by piercing their tender skulls. I have ample evidence to prove that this sometimes happens, and almost enough to justify the confident belief that destruction thus wrought may be sufficiently great and widespread to largely account for the well-known fact that every now and then almost no young Grouse arrive at maturity in New England during seasons when very many are successfully hatched. Several veteran sportsmen of my acquaintance incline to this belief, and one, James C. Melvin, has long entertained it because of various personal experiences which tend to confirm it more or less satisfactorily. One of his most interesting and definite observations was made, upwards of thirty years ago, in Carlisle, Massachusetts, where, with the help of an excellent pointer dog he kept close watch on a brood of young Partridges. When first seen they were ten or twelve in number, and not long out of the shell. During the next week they perished one after another, from day to day, almost to the last bird. Some picked up by Mr. Melvin were on the point of death; others so enfeebled that they could move only a few steps at a time. All that he examined closely had wood-ticks clustering on their heads, apparently boring well into their brains. Hence he became convinced that the decimation of the brood was wrought directly and solely by ticks, a conclusion which I see no reason to doubt. Fully-matured Grouse are less subject to such attacks, and probably never suffer severely from them because of the superior hardness of their skulls. Nor do the young always succumb to them, at least when infested late in the season, for it is by no means uncommon in September to find immature, but fully-grown birds in apparently vigorous condition, despite the fact that bloated wood-ticks are clinging to their heads. As this happens not infrequently in the Umbagog Region it seems reasonable to infer that the extreme scarcity of Ruffed Grouse there, as well as elsewhere, during some years, may be due chiefly to the wholesale destruction of young birds by wood-ticks, although the local hunters are prone to attribute it to the depredation of Hawks, Owls, Foxes, and other predatory creatures. That man can have much to do with it in forests so vast and comparatively untrodden is to my mind improbable. Whenever it occurs, the few birds met with are almost all adults and widely scattered. After being thus depleted the Grouse

supply of the region is sometimes restored to its normal status within a surprisingly short space of time, during seasons that favour the hatching and rearing of the young.

Partridge shooting in the Umbagog Region is attended by conditions very unlike those that prevail in Massachusetts and Connecticut. When I began to indulge in it about Lake Umbagog in the early 70s the birds were exceedingly tame, even close to the settlements. At first I undertook to hunt them with a setter, and to shoot them only on wing, as had been my practice in coverts nearer home. My good dog found and pointed them readily, but was evidently not a little puzzled to comprehend why they should stand conspicuously upright in open ground, or on mossy logs, regarding him with seeming indifference from a distance of only a few yards, instead of rising far in advance, or crouching unseen in dense brush, as had been the unvarying habit of all birds of their kind with which he had had previous experience. When I stepped in ahead of the staunch setter with the intention of flushing the Grouse, their behaviour was still more surprising especially if, as often happened, there were as many as five or six together. For instead of rising promptly on wing as I wished, and expected them to do, they would begin a snickering outcry almost precisely like that of a Red Squirrel, nod their heads slightly a few times, and then start off at a slow walk with crests erect and perhaps also widespread tails, shaking their heads and necks, and twitching their expanded ruffs at each deliberate step, and continuing unceasingly to utter their derisive and unseemly snickering. This was most likely to happen in a narrow cart-path tunneled through the forest, or on the outskirts of some woodland opening. In either case the birds had seldom far to go before reaching fallen tree-tops, or dense evergreen thickets, from which it was difficult if not impossible to dislodge them, at least by the aid of a dog, who would never flush his birds. Into such sanctuaries they commonly skulked on foot, if not too closely pressed. Even when I forced them to take wing by running after them, they rarely went more than a few yards before alighting in a tree, or dropping again to the ground over which they might continue to hasten, if much alarmed, until it was useless to follow them farther. Experiences thus fruitless and vexatious soon convinced me that the chivalrous forbearance exercised elsewhere towards upland game-birds by sportsmen engaged in their pursuit could not be shown these forest-bred and strangely unsophisticated Grouse, without almost certainly resulting in their escape. Thereafter I dealt with them in the time-honoured fashion of local gunners, never hesitating

to "pot" them at close range on the ground, on logs, or in trees, by shattering their heads with a charge of shot or perhaps a rifle ball. For we had constant need of them because of the lack of other palatable animal food, and it was impracticable to secure them in any other way. Of course the act of killing them thus could not fail to be more or less distasteful to anyone possessing sportsmanlike instincts and scruples, although by using a rifle and aiming only at their eyes one could at least give the birds what is termed a sporting chance to preserve their lives, of which, however, they seldom took advantage, until several balls had whistled close past their heads. The quest for them was always highly attractive, partly by reason of its tantalizing uncertainties, still more largely because it furnished an incentive for wandering hour after hour through virgin forests draped here and there in gloriously-tinted autumn foliage, perhaps to distant, long-abandoned clearings, or along obscure trails, and old logging roads leading over steep spruce-clad ridges, and through deep silent valleys to precisely where one did not often know nor, indeed, much care. All-sufficient for each fleeting moment was the simple joy of roaming amid scenes of such unending, yet ever-varying, beauty, and the thrilling expectation, damped but for an instant when unfulfilled, of coming upon the sought-for game-birds just beyond the next turn of the path. If they happened to be plentiful that season, one might see ten or a dozen and perhaps bag half as many, in going no more than three or four miles. There was less chance of thus encountering them early in September than after the fall of the leaf, when they appeared much oftener and more numerously than at any other time of year, about the edges of openings, on river-banks and lake-shores, in woodland paths, and roads, and along public highways bordered by woods or thickets, visiting all these, we thought, chiefly for the purpose of basking in the sun, picking up gravel and plucking the leaves or berries of lowly plants that flourish only in full sunlight. They were most likely to thus expose themselves in the early forenoon or mid-afternoon of clear, warm, windless autumnal days succeeding keen frosty nights. "The warmer and stiller the day, the tamer the birds" was a true saying of local hunters familiar with their habits. Whenever the wind blew strongly they were more or less shy or restless; sometimes they could not be approached within gunshot when it was roaring through the tree-tops. During windy or cloudy weather they moved about comparatively little and remained for the most part in sheltered and secluded forest nooks, where it was difficult to find them without the aid of a dog. A barking, country-bred cur that would 'trail them

persistently, and remain with them faithfully after they had been flushed and treed, was far more effective if one cared to use him, than any well-trained pointer or setter, because he came up with his game more quickly and announced its discovery from afar by his noisy yelping, so that there was no need to follow him closely. Several such dogs were kept and hunted, thirty or forty years ago, by men living in the Lower Magalloway Settlement. They have not been much employed about the Lake in my time, although I remember one formerly owned in Upton who, during several successive seasons, enabled not only his master, but also various neighbours who borrowed him freely, to kill many more Partridges than could be obtained by anyone not thus assisted. To sportsmen and ornithologists staying at the Lake House he became a positive nuisance, because of his frequent and disturbing presence in woods near at hand; nor were the guides heard to express any regrets when he finally died, or perhaps was taken elsewhere, in 1879 or 1880.

During my early experience at Lake Umbagog it was not less mortifying than surprising to find that although blessed with by no means indifferent eyesight, already trained to spy out all manner of inconspicuous things in woodland places, I was constantly overlooking full-grown Partridges almost as big as domestic fowl, and standing upright on ground or logs, perhaps in open view. Many, no doubt, would have been passed wholly unheeded, at least when I was unaccompanied by guide or dog, had it not been for their foolish habit of setting up snickering outcries when closely approached. As long as they remained motionless their wondrously concealing colouration, blending or harmonizing perfectly with the prevailing tints of everything about them, served to render them well-nigh invisible at times. One of the best instances of such obliteration that ever came under my observation was afforded by an old cock Grouse stalked and shot in a cedar swamp where he was drumming lustily on a mossy log. Favoured by screening evergreen foliage I crept stealthily to a spot within twelve feet of the log. Although every part of it was now in plain sight, I could see nothing whatever on it. That the bird was still there could not be doubted, for he presently drummed again when, incredible as it may seem, I failed to note either his form or movement, although the swirling and eddying of some dry leaves lying beneath the log did attract my attention. As no air was stirring in the swamp I knew, of course, that they must have been set in motion by wind from his whirring wings. Even after his exact position had thus been betrayed, I failed to make him out at once. Indeed he took form and

substance in my eyes and mind only gradually and almost insensibly, just as dissolving pictures thrown on a screen become revealed, yet was at length seen quite distinctly.

When, at Lake Umbagog, the birds sought refuge in trees to which their flight could not be accurately traced, it was still harder to find them. Indeed I almost invariably failed to do so unless assisted by some native hunter. Possessing eyesight better trained than mine, although perhaps not otherwise superior, and knowing through long experience just how and about where to look for the birds, he commonly discovered them without much loss of time. Even when they were pointed out to me I did not always immediately perceive, or at least recognize, them. Standing stiffly erect with raised crests, grotesquely elongated necks, and tightly-compressed body-plumage, they were easily mistaken for stout, stubby prongs where upward-growing limbs had broken off, or for thick clusters of Usnea moss, or perhaps for loose scales of rough bark; and hence in nowise suggested the plump and shapely birds which one's imagination persisted in picturing as the objects to be looked for. Most of them chose perches thirty or forty feet above the ground in large trees, either close to the main trunk, or at varying distances from it on living or dead branches, but some were contented with flying up no more than eight or ten feet into saplings or bushes where they occasionally made themselves conspicuous by tilting their bodies, and flirting their tails in order to preserve their balance on slender, swaying twigs. When in trees they shunned, rather than sought, concealment afforded by dense foliage, whether evergreen or deciduous, although ready enough to skulk beneath it on the ground. Increasing practice enabled me to discover their motionless forms more and more readily amid surroundings of every kind, but I never had enough of it to become as proficient in this respect as were most of the native woodsmen who accompanied me from time to time.

While seeking Ducks along the wooded reaches of the Cambridge and Magalloway Rivers or in retired coves of the Lake, we often found Birch Partridges instead and perhaps shot them without landing from our boats or canoes. An experience of this kind with exceptionally tame and sluggish birds occurred on September 25, 1889. In mid-forenoon of that day James Bernier and I were ascending the Magalloway and nearing Bottle Brook Pond when a cooing sound came to our ears from just within the woods that lined the river-bank. I was inclined to refer it to a Muskrat, but Bernier said that a Partridge was making it, and he proved to be right for we presently saw the bird

call as she sat on a log. When I finally shot her the report of the gun started six others, hitherto unseen, although close about her. Flying only a few yards they alighted in trees and bushes within plain view, and remained there gazing at us while, sitting in the bow of the boat, I loaded and fired until the last bird had fallen.

Another experience, similarly murderous, but equally justifiable for reasons already explained, is thus described in my notes:—

1889, October 21.— As we were paddling around Gaspy Cove about ten o'clock this forenoon the outcry of a Birch Partridge attracted our notice. Landing to follow up the sound I crossed a rather wide strip of marsh, and just beyond it came upon six birds basking in the warm sunshine among driftwood strewn by freshets along the outer edge of the forest. As I ascertained by killing all its members, the flock contained four young females, one young male, and a veteran drummer who may have been the father of the rest, but there was no old hen. Only slightly disturbed by my near approach in the open, and scarce more so when I began shooting at them, these foolish Grouse made no attempt to elude me other than by walking slowly off over the ground, and along stranded logs, stopping every now and then to stare at me wonderingly. The big drummer strutted repeatedly and pompously with tail erect and widely fanned, nodding his head, and shaking his expanded black ruffs in what seemed to be a spirit of challenge or defiance. Squirrel-like chitterings and snickerings were frequently uttered by him, and all the others, except one young female who, after flying a short distance and alighting on a log called *coo-coo-coo-coo*, very low and softly, every few seconds. This peculiar cry reminded me quite as strongly to-day, as on September 25 last, when I heard it for the first time, of the subdued, murmuring sound which Muskrats make in the early spring.

Not unlike the demeanor of the socially-inclined old Cock Grouse just mentioned was that of a solitary one seen in Grafton Notch on October 12, 1888. According to my notes he walked deliberately across the road in front of our advancing horses, carrying his wide-spread tail erect, twitching his ruffs, and shaking his head with such violence that he seemed in danger of dislocating his neck. When the horses were within ten feet of him he stopped by the roadside and stood erect and motionless, with plumage so grotesquely dishevelled that he looked very like a bunch of withered leaves. After we had passed he began picking at some berries.

My notes mention another adult male, accompanied by a female, presumably his mate, and met with in a wood-path near the Lake House, on October 18, 1885, whose behaviour was singularly bold and daring. When first noticed he had already seen me and was standing upright and motionless, with tail erected and fully spread, ruffs ex-

panded and twitching nervously, and the entire plumage of crown, cheeks, throat, and neck so ruffled and distended that his head looked almost as big as my fist, and his neck quite as thick as my wrist. Swelling and bristling thus with seeming rage and defiance, bearing himself proudly and chittering as volubly as any Red Squirrel, the fearless bird actually advanced as if to meet me, when I drew near, but stopped two or three yards away to perish ignominiously there, for a moment later I killed him instantly with a light charge of dust-shot fired from a 32 calibre collecting pistol aimed, of course, at his head.

To the best of my knowledge the Birch Partridges of the Umbagog Region never eat the spills of coniferous trees, although subsisting almost wholly on the buds of deciduous ones during rather more than half of the year. In late spring and early summer their food is gleaned mostly from the surface of forest-shaded ground and consists largely of insects and low-growing herbaceous foliage of various kinds. Even where it is most plentiful the birds seldom linger anywhere to seek it, but continue to advance, picking up a leaf or grub now here, next there, so daintily and infrequently that they often ramble on slowly for a quarter of a mile or more before filling their crops. They are somewhat less dainty and fastidious when feasting in late August on the fruit of low blueberry bushes, while in September I have often seen them alight at sunset in cornel or Viburnum (especially *V. opulus*) bushes on river-banks and literally gorge themselves in the course of a few minutes, almost without change of foothold, on the berries which these shrubs commonly bear in such profuse and crowded clusters. Later in the season the pale orange fruit of the mountain ash is similarly dealt with whenever it can be had plentifully, which is not oftener than every other year. The glowing red berries of the black alder are also eaten freely in late autumn. The birds seem to have little or no liking for oats, but are exceedingly fond of buckwheat, and to obtain it will venture out fifty yards or more from neighbouring coverts into stubble fields where it has recently been grown and harvested. They are equally unable to resist the attraction offered by apple orchards near the houses during the budding season. This begins soon after the fall of the leaf in autumn and continues until the foliage is renewed the following spring, although more or less food of other kinds is gleaned from the ground whenever it is uncovered by snow. As the supply of buds is always inexhaustible and also easily accessible, at least when they are not encased in ice, Partridges fare well on them and keep plump and vigorous through the longest and hardest winters. Those borne by aspens, great-leaved poplars, and yellow birches in

the woods, and by apple trees in the clearings, are most favoured. Certain individual trees seem to be preferred to others of similar kinds growing near at hand, perhaps because the buds they yield are especially plentiful or well-flavoured. Some are visited regularly, perhaps for weeks in succession, every morning as soon as it is broad daylight and again at evening, shortly after sunset. Coming on wing from more or less distant places, the birds alight among the leafless branches at varying heights above the ground, remaining motionless and keenly watchful for a few moments, and then proceeding to pluck off the buds so ceaselessly and expeditiously that they commonly get their fill of them in the course of the next fifteen or twenty minutes. Their manner of obtaining them is most interesting, but by no means easy to witness, for while thus engaged they seem much more fearful of human observation than at any other times and once conscious, or perhaps merely suspicious, of it, at distances however remote, will instantly cease and seldom resume their feasts, although they may not immediately leave the trees. Why they should thus behave on such occasions, yet on others regard the near approach of man without distrust, is difficult to comprehend. Perhaps it is because they realize that while moving about actively in leafless tree-tops, they run unusual risks, and think that these can best be minimized by resorting to perfect immobility whenever danger threatens. However this may be, the watch they keep is invariably so keen and unremitting that one cannot often see them actually engaged in budding. The best opportunity that I have ever had for doing so happened in Concord, Massachusetts. It was so much more favourable than any which has befallen me in the Umbagog Region that I have decided to give the experience here in preference to drawing on less full and satisfactory notes made at the Lake, despite the fact that it relates to Ruffed Grouse belonging to the type-form *umbellus*, and hence subspecifically distinct from the birds of northern New England, although given to precisely similar behaviour, I believe, when budding. It is referred to in my journal nearly as follows:—

1902, March 9.— Cloudy with southeast wind and light but steady rain falling on snow which still covers the ground to a depth of five or six inches. At six o'clock this morning my assistant, R. A. Gilbert, called me to see some Ruffed Grouse budding in a large wild apple tree that stands within sixty yards of our old farm-house, from one of the eastern windows of which I was able to watch them very satisfactorily through my field-glass. Five or six were noticed at once and before many minutes had elapsed I counted no less than *nine* scattered all over the tree, a few being low down on stout limbs close

to its main trunk and hence inconspicuous, but the greater number near the ends of its longer upper branches, where they could be plainly seen, while one or two were perched on the very topmost twigs, boldly outlined against the grey sky and looking as big as Hen-hawks. They were busily engaged in budding, an operation which I have never before witnessed to such good advantage. It was not less surprising than interesting to see birds ordinarily so shy and retiring, and so very stately and dignified of bearing, assembled thus numerously in an isolated, leafless tree not far from a house, hopping and fluttering almost ceaselessly amid its branches, thereby displaying unwonted activity and sprightliness, as well as apparent fearlessness. At times, however, they would all stand erect and motionless for a few moments, evidently looking and listening intently. Those feeding near the ends of long and slender branches had some difficulty in keeping their foothold and were constantly obliged to jerk up their tails, and flutter their wings in order to preserve their balance, especially when as often happened, they stretched forward or even for a moment bent almost straight downward after the manner of Redpolls or Pine Siskins similarly engaged. They picked off and swallowed the buds in rapid succession, with much the same quick, bobbing motion of the head as that of a domestic fowl feasting on corn. The supply of such buds as they chose, within reach of the most favouring perch, seldom lasted more than a minute or two. When it became exhausted the Partridge either moved still farther out among the terminal twigs, or flew to another part of the tree. Birds at work not far from the trunk behaved somewhat differently, and with decidedly more dignity and deliberation, doubtless because the buds they were obtaining grew on short twigs within easy reach of thick and perfectly-rigid branches on which they could stand or work as easily as on level ground.

Just when the Partridges came to the tree this morning I cannot say. All were certainly in it when I first looked out. They began leaving it about twenty minutes later, one or two at a time, at intervals of a minute or two, flying straight to neighbouring woods, but in three or four different directions, thus indicating that they had come from divers places. I have reason to believe that all the birds which visited our orchard this morning assembled in the one tree near the house, although going to, as well as from it, they had to pass over or near upwards of forty large apple trees which stand between it and the woods. Perhaps it has especially savoury or abundant buds, or the Partridges may have finished raiding the other trees earlier in the winter when they were repeatedly noticed there by my foreman.

On the occasion just referred to the Grouse seemed to be stripping the tree of its buds; but on closely examining it afterwards I failed to find that they had taken many of them anywhere, even from branches and twigs where they had lingered longest. Nor have I ever known them cause the least injury to trees of any kind. It is said that they prefer the fruit-buds of apple trees to those which produce only leaves. One of my farmer neighbours at Concord maintains that they reduce the numbers of these just sufficiently to prevent the trees from overbearing, thereby enabling them to yield apples every,

instead of every other, year. As far as I have been able to observe this is precisely what happens in our orchard, where the trees which stand nearest the woods, and hence are budded oftenest and most thoroughly by Ruffed Grouse, bear fruit annually for the most part, whereas those growing close to the farm-buildings, and seldom or never visited by the birds, are much less dependable in this respect.

To return to the Umbagog Region. When in 1893 I took possession of Pine Point and built a log-cabin there, it was decided that animal life of whatever kind should be held for the most part sacred within the thirty or more heavily-wooded acres covered by my lease, however freely guns carried by members of our party might be used elsewhere. As was hoped, if not expected, many habitually shy or retiring forest-haunting creatures of greater or lesser size, finding themselves here safe from human molestation, at least for a time, soon began to frequent the immediate neighbourhood of the camp and to become more or less tame and confiding. Among these were Canadian Ruffed Grouse in numbers varying from time to time. It is to be feared that because of the very protection we gave them they sometimes fell an especially easy prey to roving gunners who landed on the Point after we had left it, one of whom, not as yet forgiven, is known to have slain an especially fine cock bird whose frequent and familiar presence in the autumns of 1893 and 1894 was a source of much pleasure and interest to us all. For on the crest of a knoll scarce twenty rods from the camp he drummed at frequent intervals almost daily, whenever the weather was clear and warm, on the crumbling trunk of a big pine that had fallen half a century before. At first he seemed inclined to distrust human observation, but by degrees became so indifferent to it that we could stand in open sight and within twenty yards of him and watch his drumming performances to our heart's content. In order to study them at still closer range I finally erected a blind of evergreen boughs just twenty-five feet from his accustomed station. Reaching this shelter by a path kept clear from fallen leaves and sticks, along which it was not difficult to steal unseen and unheard by the old cock Grouse, I spent many an interesting hour ensconced in it, noting every thing he did and photographing him repeatedly in the act of drumming, but without much success; for being densely shaded by overarching hemlock foliage, the spot was commonly too dimly lighted for instantaneous exposures which, however, had to be made because of the rapid movement of the bird's wings. The following account of his behaviour is made up of field-notes, some of which were written in the little bough-shelter just referred to, others before it was con-

structed. In transcribing them I have refrained from eliminating or essentially changing statements of uncertain, varying, or conflicting impressions because all these are definitely confirmed, discredited, reconciled, or otherwise rectified by later and better observations, and also because they serve effectively to demonstrate how easily one may be deceived or misled in respect to the wing-movements of drumming Ruffed Grouse watched under other than the most favouring conditions.

1893, October 5.— A cock Partridge has been drumming every warm, still day of late on a large mossy log near our camp. I watched him this morning through a powerful field-glass (6 diameters) from a distance of thirty yards. For several minutes he stood perfectly motionless, in a listless attitude, neck drawn in, tail about one third spread and slightly raised, wings drooping, altogether a dull, dejected-looking bird. Suddenly he stretched up his neck to its fullest length and glanced keenly around, turning his head in every direction and bobbing it up and down. Then he circled four or five times around a space no more than a foot in diameter, stepping slowly and gracefully, with ruffs raised and tail about half-spread, carrying the latter rather high and alternately lifting and depressing it slightly. Immediately after the last turn he stopped, and facing at a right angle with the log seated himself on it in the attitude of a Penguin, and equally erect, his head, neck, and body being all in a nearly or quite vertical line. The neck was now somewhat shortened and the crest slightly raised while the wings were partially opened ready for the first stroke. As he sat thus, turning his right side squarely towards me, I saw plainly that his tarsi and tail were pressed closely for *their entire length* on the broad, flattened, upper surface of the log. A moment later the bird began to drum. Being disconnected and comparatively slow, his first few wing-strokes were not difficult to follow with the eye. They obviously began well behind his back and ended about equally far in advance of his breast, having a total sweep of not less than twelve inches. It seemed perfectly clear to me that the primary quills, at least, struck only the empty air. The basal part of the wing may perhaps have come forcibly against the sides of the body, but if so the fact escaped my attention. The incessant vibration of the wings that succeeded the preliminary beats and produced the final and unbroken volume of sound was, of course, impossible to trace except by its resultant, hazy blur — sufficiently apparent. Immediately after this had ceased the bird spread his tail almost to its fullest, and circled once or twice, in the manner already described, before resuming his customary moping attitude. I saw him drum twice.

1893, October 6.— Although the weather was clear, calm, and warm throughout to-day, our Partridge did not drum during the forenoon. In the afternoon he began at half-past four and kept it up until long after sunset. I watched him about an hour and saw him perform five times. The light was fairly good and, as some intervening brush had been cut away, there was now

nothing to intercept my view of the bird. He was exactly where I saw him yesterday, but when drumming, faced a little more towards me thus enabling me to see between his right wing and side. That the ends of the primary quills swung quite clear of the body was again evident, but the carpal joint itself apparently struck the side of the breast, the plumage of which seemed to be indented, and was certainly disarranged, by each forward thrust of the wing. Perhaps, after all, the thumping sounds are produced partly by impact of the wing-joint on the breast, instead of wholly by that of the wing-quills on the air as I have hitherto supposed. The bird regularly raised and spread his ruffs once just after drumming, but at no other time. His crest was constantly kept erect.

1893, October 13.— The Partridge drummed at intervals for more than two hours this morning, beginning about sunrise. I watched the performance several times to far better advantage than ever before, for clear, strong light, coming from behind me, struck full on the bird. He regularly faced a trifle away from me so that my eye could follow one wing during the whole of its backward and forward swing besides keeping the corresponding side of the body clearly in view. Thus favoured, I saw, beyond what seemed any possibility of mistake, that during all the intermittent, preliminary beats, no part of the wing, or of the flight-feathers attached to it, touched the body, or indeed came within less than two or three inches of it. It was equally evident that the agitation and indentation of the plumage of the breast, first noted a week ago, and observed again to-day, were caused partly by wind from the wing-strokes, and partly by accompanying and quite obvious action of the powerful pectoral muscles. Thus satisfactorily has my original belief that the wings of drumming Grouse strike only the air, been confirmed and reëstablished. The two guides, Jim Bernier and Will Sargent, became converted to it this morning while watching our Pine Point bird. Jim has hitherto maintained that the drumming sound is made by impact of the wings on the log; Will, that they thump against the bird's breast. It is especially gratifying and reassuring to have Will finally adopt my view without reserve for, like his brother Luman, he possesses keen and discriminating powers of observation, and is much too honest and self-reliant to be influenced by opinions differing from his own, unless they are backed by evidence in which he can find no flaw.

1894, September 21.— Our Partridge was back on his favourite log again this morning when he drummed at short intervals for about an hour (9–10 o'clock). We all went up to watch him. Mrs. Brewster and Miss Simmons became quickly convinced that his wings struck not his body, but the air. He behaved precisely as he did last year and when drumming occupied exactly the same spot as then, facing in the same direction.

1894, September 26.— While photographing the cock Partridge in the act of drumming to-day I had a fine view of him through the peep-hole in the blind, but noticed nothing new. It was again evident that his tarsi, for their entire length, were pressed down on the log, and that his wings did not strike his body. He seemed unaware of my presence until just after the last plate

had been exposed, when it must have been discovered, for he suddenly ran off along the log uttering the *quit-quit-quit* cry of alarm.

1894, October 3.— After hearing our Partridge drum twice this morning I went to the knoll where he was in his accustomed place, but behaving rather oddly; for he stalked about much more than usual, and although repeatedly assuming the drumming attitude, beat his wings only once or twice on each occasion and then closed them, after which he would step around and around in a narrow circle or preen his feathers. When a large yellow leaf from a moose maple came whirling down and settled on the log he walked to it, looked at it attentively for a moment and then, picking it up in his bill, tossed it from him to the ground with an impatient jerk of the head. Soon after this he disappeared mysteriously while my attention was diverted for a moment by something else.

Several writers have asserted that the Ruffed Grouse is much given to pompous, Turkey cock-like strutting on his drumming log. I have never once known it to be indulged in there, although occasionally seeing it performed rather conspicuously elsewhere, as has already been stated. It will be noticed that in respect to several other details my observations do not closely agree with those of others who have written about the drumming of the Partridge. To discuss or attempt to reconcile these points of difference would require more space than can here be spared for such a purpose. I shall therefore content myself with having described to the best of my ability the experiences above related.

Sometimes in spring and occasionally in autumn Ruffed Grouse drum at frequent intervals all night long. This is most likely to happen when there is moonlight, but may occur without it. Although fully aware that in such a way the birds may be nocturnally active, I had not supposed before the autumn of 1890, that they ever ramble about freely through the woods by night. Hence it surprised me not a little when, in the evening of October 18 of that year, one visited our camp on a wooded knoll near the Lake shore fully an hour after dark. Because of a densely-clouded sky there was practically no light at the time in the little opening in front of the tents save that furnished by a lantern near which two of the guides were eating supper. They saw, as well as heard, the bird rise not fifteen yards away, within the space illuminated by the lantern. As she evidently went far back into the woods we did not attempt to follow her. How she could thus have flown at apparently full speed through the crowded trees without hitting trunks or branches is difficult to comprehend. Nor is it much easier to explain why she should have approached the camp so closely

at such an hour unless, indeed, it may be assumed that the light of the lantern attracted her.

As twilight was fading on the evening of October 25, 1889, a Birch Partridge came flying low over the water to a densely-wooded shore of Rapid River, and dropped into a bed of ground hemlock within a few yards of where my guide and I happened to be standing motionless. After the rustling sounds caused by her movements among dry leaves had ceased, they lasted several minutes, I entered the yew thicket and tramped all over it without flushing her, but the guide finally started her only eight or ten feet from where we had seen her alight. I was satisfied that she had settled herself there for the night, flying directly to her bed as Bob-whites are accustomed to do. It is unusual, I believe, for Ruffed Grouse to sleep anywhere on the ground except under a thick covering of overlying snow. Perhaps this one was tempted to do so because the wide space of deep water bordering on the shore seemed to safeguard her against the approach, from at least that direction, of Foxes and other four-footed nocturnal marauders equally to be feared. On September 30 of the same year I was surprised to find a moody-looking Partridge standing motionless just within a deserted and roofless log-cabin. As this happened in the forenoon there is no reason to suppose that the bird had any intention of remaining there over night.

It used to be rather commonly believed and asserted by those who hunted Partridges systematically in the Umbagog Region, that the birds were not always locally resident there, but came and went at infrequent and irregular intervals, from and to just where no one claimed to know. Apropos of this Luman Sargent had an interesting story to relate which ran as follows:— After spending an October night (before 1870) in the old log-camp at Middle Dam and leaving it at about sunrise the next morning, he had gone only a short distance into neighbouring woods when he saw a Partridge on a log and shot it. Startled by the report of his gun so many birds of the same species rose far and near on wing, one after another, that for half a minute the air seemed full of them as far as the eye could range through trees and brushwood. There could not have been less than one hundred of them, he said. When followed they all kept moving on by successive flights in the same direction, and to the southward. They were so restless and shy that he had difficulty in getting near them and was able to kill only a few more before losing track of them altogether.

A somewhat similar experience befell my friend, the late Charles Theodore Russell, Jr., of Cambridge, in September, 1870, when he and

I were at the Forks of the Kennebec in northern Maine. Accompanied by Oliver Adams, a noted and most reliable guide of that time and place, he set forth one afternoon to look for Partridges. Coming to a forest-encircled, grassy pasture of considerable extent, where it was hoped that a few birds might be met with, they were astonished to find almost every part of it literally alive with them. My friend, then wholly inexperienced in respect to such matters, thought there might have been a thousand in all, but when the guide was questioned about it he replied quietly:— "perhaps one hundred and fifty or two hundred"; which doubtless was not far from the truth, for Oliver was a close observer, and not given to exaggeration of any kind. I cannot recall what was said about the behaviour of these birds, but as no more than a dozen or fifteen were bagged, it was probably not unlike that of those encountered by Luman Sargent near Middle Dam.

I have had only one personal experience which in any way resembles either of those just described. It happened in 1888 or 1889 when I was staying at the Lake House. At the edge of the woods immediately behind this hostelry, about nine o'clock of a calm and sunny September morning, I came upon two Partridges sitting in listless attitudes on a log. Having left my gun at the house I went back for it and with it in hand, but unloaded, was about to step down from the front piazza when a Partridge, perched on the well-curb within ten yards of it, caught my eye. Before a shell could be inserted in the gun she whirred off towards the steamer landing, followed by eight or ten other birds which rose in quick succession from wood-piles, fence-rails, the vegetable garden, and elsewhere close around the house to which they must have come while I was within it. One alighted on a hay-stack by the river-bank where it was shot by W. E. Skillings who happened to be passing in his canoe. The rest dropped into open, sedgy marsh just beyond. A minute or two later they all took wing again and crossed the marsh to tilled grass-fields at the foot of Upton Hill. Hastening along the road leading thence I kept seeing them rise and realight far in advance, until they had been followed half-way up the hill and watched almost to its top. Thus they were seen to traverse at least a mile of treeless country by a dozen or more successive flights, undertaken at intervals of only a few minutes each, without obvious disturbance of any kind after they had left the neighbourhood of the Lake House. Their course led straight southward over or near isolated woods and thickets which often afford temporary shelter to Ruffed Grouse, but were quite ignored by these strange-acting birds who invariably alighted in perfectly open places. Altogether their

behaviour was not unlike that of so many shy and restless Meadow Larks, but much more indicative of restlessness than of shyness which, indeed, had apparently little or no part in it. It convinced me that they were migrating to some more or less distant region or locality, a belief which I continue to maintain.

On glancing over what has just been written about Ruffed Grouse, it is amusing to note that in referring to birds whose sex was not ascertained, or perhaps even guessed at, I have repeatedly used the feminine pronoun, thereby unconsciously betraying a habit instilled in me long ago by other sportsmen, most of whom are accustomed to speak of all Partridges not definitely known to be cocks as if they were presumably hens. In deference to such common usage it may be as well to let the "shes" and "hers" stand, wherever they happen to have been thus thoughtlessly employed in my text.

Umbagog woodsmen possessing discriminating powers of observation and large experience believe that Birch Partridges habitually pair, and are not often polygamous. I am inclined to share this opinion, although not without definite knowledge that the cock bird sometimes mates with more than one hen in the course of a single season. While he lays claim to only one, he may continue to be rather attentive to her while she is sitting on her eggs, besides sharing with her to some extent the care of the young for a week or two after they have left the nest which happens, of course, almost as soon as they are hatched. Most of the nests that I have seen in the Umbagog Region were found near the southern end of the Lake in the spring of 1896, by my assistant, Mr. C. H. Watrous, who displayed such extraordinary skill and sagacity in leading the way to them, that I felt half-inclined to suspect him of nosing them out after the manner of a keen-scented dog or Fox. The following records of those he enabled me to examine are transcribed almost literally from condensed field-notes written on the spot:—

1896, May 14.— Nest found at 9 A.M. when it contained four eggs on which the female Partridge was sitting. There were six at 4 P.M. on the 16th and seven at 3 P.M. on the 17th. On both these occasions the bird was absent, and had left her eggs uncovered. She laid no more, although on the nest at 7 A.M. on the 20th and at the same hour on the 21st. This nest was directly under the main stem of a fallen poplar, on a dry knoll wooded with second-growth poplars and birches among which were interspersed a few balsams and spruces. It was thirty yards back from a public road and within ten yards of an open pasture. The hen Partridge, an exceptionally light and reddish-coloured representative of the form *togata*, invariably left her eggs before we could get nearer her than eight or twelve feet, and then glided off quite rapidly, yet with

creeping, rather than walking or running, gait, keeping her body flattened close to the ground, her head and neck not far above it, her wings trailing low and quivering ceaselessly, uttering all the while a plaintive and subdued whining precisely like that of a shivering and hungry little dog. A cock bird, presumably her mate, was frequently heard drumming in a deep hollow fully two hundred yards from the nest, and hence almost out of hearing of it.

1896, May 15.— As we were skirting a brush-grown pasture this afternoon Watrous espied a Partridge on her nest. It was at the edge of a thicket of alders covering rather wet ground, between two large, buttressed roots of an old stump. Overspreading branches of a small arbor vitae and Viburnum, growing close beside it, screened it so perfectly that the brooding bird could be seen only from the direction whence we happened to approach. Thus viewed she was conspicuous enough, for she sat uncommonly high in the nest winking frequently, but not otherwise moving even when I struck some twigs not six inches over her head rather forcibly with a walking stick. After standing within four feet of her for several minutes we left her still on the nest. Watrous visited it thrice the next day without disturbing her. At half-past seven on the morning of the 17th, I photographed her twice and was about to expose a third plate from a distance of perhaps five feet when she suddenly rose to her feet and ran off through the brush, making a puppy-like whining, trailing her wings and every now and then tumbling over on her side as if wounded. We now saw the eggs for the first time. They were nine in number and quite fresh. When approached again a few hours later, the bird sat less closely than before, but behaved otherwise in a similar manner.

1896, May 16.— Watrous found two Partridges' nests on this date *without flushing either bird*. The first nest was in a very exposed situation, quite outside the border of wild cherry, mountain maple, and other undergrowth that fringed an extensive forest, half-encircling an upland mowing field, and in the field rather than in the forest, although but a yard or two from where the latter ended. Here it was sheltered from observation and from blazing sunlight by only a few dead sticks, the remains of a disintegrated brush fence. The bird was not disturbed until the next day (17th) when the manipulation of my camera finally started her off the nest. Flying a few yards from it she ran still farther away, uttering the usual low whining. It then contained nine eggs. There were no more four days later when the eggs were taken and found to be somewhat incubated. The discovery of the other nest afforded especially convincing proof of Watrous's extraordinarily keen and discriminating eyesight. For when he first saw the bird, and called my attention to her, she was not less than twenty yards from us and so deeply sunk in a bed of dry leaves at the base of a striped maple, that even with the aid of a good opera-glass I failed to make her out until I had gazed fixedly at the spot for more than a minute. The tree grew on a steep hillside, wooded with second-growth birch and maple, at the base of which was a deep, shaded glen watered by a living spring, and close to a travelled road. The nest held five eggs on the 16th, 17th, 18th, and 19th, as well as at 6.30 A.M. on the 20th. At the same hour

of the 21st there were six which we left undisturbed, but did not again see, having no opportunity for revisiting the nest.

1896, MAY 18.— Early in the forenoon, for the *fourth* time within the past week, Watrous found and left the nest of a Partridge without starting off the bird. It was no more than thirty feet from the public road leading through Cambridge towards Errol, and perhaps thrice that distance from the Lake shore, on a little mound at the edge of an opening, but beneath the overspreading foliage of densely-crowded young balsams and arbor vitaes which concealed it perfectly from above, although it could be seen rather plainly from every side when one got sufficiently near to overlook the tangle of fallen tree-trunks and branches cumbering the ground all about it. About 11 A.M. on the 21st I obtained some excellent photographs of the sitting bird, a dark grey one, who permitted me to expose plate after plate at her from a distance of only five feet; but when the camera was advanced to within three feet of the nest she left it and after flying a few yards, and running somewhat farther over open ground, disappeared in a brush-fence by the roadside. There were then ten eggs. An eleventh egg had been laid when we returned to the place four hours later (at 3 P.M.). We heard a cock Partridge drumming on a knoll about one hundred yards from this nest.

Young Birch Partridges leave the nest almost as soon as they are hatched, and ere long, within ten days I believe, develop the plumage of their wings sufficiently to perform short and feeble flights. Before this comes to pass they must encounter frequent and fearful perils in the Umbagog forests, against which, however, their devoted mother safeguards them with wonderful cunning and daring, risking her own life most fearlessly. If a dog has to be dealt with she flutters off before him, keeping only just beyond his reach, and thus leading him on and on to what she considers a safe distance from her brood. She may behave similarly in the presence of a man, but is more likely to run straight at him with bristling plumage, to whine and beat the ground with her wings close about him, or even to peck at his boots in what seems, and doubtless is, a perfect transport of rage and despair. By thus exposing herself she diverts attention from her young, thereby giving them an opportunity to scatter and hide, of which they are not slow to avail themselves. Sometimes she is accompanied and ably abetted on such trying occasions by a lordly cock, no doubt her mate, who may display courage and daring in no wise inferior to her own. Occasionally there will be only the cock in charge of a callow brood whose mother has presumably perished, perhaps because of overventuresomeness in their behalf. I have seen or known all this to happen at the Lake. Not far to the southward, where the covers are oftener disturbed by men and dogs, the birds are somewhat less bold

in the defence of their young. The behaviour of one met with at Bethel, Maine, is described as follows in the journal:—

1903, JUNE 4.— In woods near Dr. Gehring's house he and I came upon a female Partridge with young about as big as newly-hatched chickens, finding her in nearly the same place yesterday and this afternoon. On the former occasion the chicks ran a few yards, and then separated to squat, as usual, among or beneath fallen leaves, but contrary to their usual custom they kept up an incessant peeping after thus concealing themselves. The mother crawled close about us, whining like a puppy, as long as we stood near the young, but when we walked on a few paces, not above a dozen, she hastened at once to where the chicks had hidden and began calling to them, uttering the characteristic, harsh *crut, crut, crar-r-r-r* outcry. They probably joined her then, but the ferns grew so thickly about the spot that only the mother bird could be seen. We did not see the chicks at all this afternoon, nor did they peep. The old hen started out from a thicket beside the footpath and circled around us, whining as before. She was a grey bird, apparently a typical *togata*.

Early settlers of the Umbagog Region whom I used to meet about the Lake thirty or forty years ago agreed in thinking that Partridges were not then ever so plentiful as they often had been before 1850. Within my time no obviously progressive and permanent decrease in the number of birds has taken place, although there have been not infrequent periods of extreme scarcity invariably followed, however, by seasons of comparative abundance. But, if the ever-multiplying gunners have not as yet caused any very appreciable diminution of the local stock of birds, they certainly have made them much shyer than of yore, at least in the neighbourhood of the settlements. The change began to be noticeable about 1889 or 1890. During the next decade very many of the Partridges inhabiting covers bordering on farming lands in Upton and Cambridge became almost as wary and otherwise sophisticated as those found in eastern Massachusetts; so that by 1900 it was possible to hunt them successfully, yet without forfeiting one's self-respect, employing setters or pointers to find them, and shooting them only on wing. Unfortunately this desirable change came too late to be of much service to me, although I had some advantage from it before laying aside my gun. Thus far it has been confined, I believe, chiefly to localities much frequented by men, the birds resorting to remote depths of the forest, being still almost, if not quite, as tame and trustful as in former days.

COLUMBIDAE.

Ectopistes canadensis (Linné).

PASSENGER PIGEON. WILD PIGEON.

Formerly an abundant transient visitor in spring and autumn as well as a more or less common summer resident. Completely exterminated before 1900.

Many people living in the Umbagog Region when I first visited it bore testimony to the exceeding abundance of Passenger Pigeons there in still earlier times. They agreed that the birds had been accustomed to appear most numerously just as the ground was becoming bare of snow in spring and again in early autumn. At both seasons flocks containing thousands upon thousands of Pigeons might continue to arrive, and pass at frequent intervals, for days in succession. Such visitations were eagerly anticipated for they furnished a plentiful, if somewhat uncertain and only temporary, supply of attractive food to the settler folk who often had little trouble in shooting or netting as many birds as were required for local consumption. If the Pigeons found beech mast in abundance on forest ridges, or patches of oats or buckwheat ready for harvesting in stump-besprinkled clearings, or low blueberry bushes loaded with ripening fruit in burnt lands or other waste places, they were seldom in haste to push on and might linger very numerously for a week or two before doing so. Most of those seen in spring went elsewhere and, it was thought, farther northward, to breed, but some always remained through the entire summer, and nesting colonies extending over many square miles of forest were occasionally established far up the Magalloway River or about the upper lakes of the Rangeley chain. Nearer than this to Lake Umbagog the Pigeons do not seem to have ever bred in very considerable numbers within historic times. That their passing flights had not begun to thin and wane appreciably before 1850 is established by a statement made to me in 1890 by a reliable farmer living in Errol, who claimed to remember distinctly that only forty years before then the Pigeons were still so abundant that they appeared on wing in flocks a mile or more in length and had to be kept out of the buckwheat fields by boys who watched the grain ceaselessly from daylight until dark. During the next following decade they diminished rapidly in numbers and after 1870 no such multitudes as those above referred to were ever seen. Nevertheless to one unaccustomed to viewing them in these

countless hordes, they seemed plentiful enough about the Lake between 1871 and 1875, as the following data compiled from my journal and note-books will serve to show:—

1870, September 3.— Shot four Pigeons at one shot early in the forenoon on the border of Salmon Stream, and later in the day shot three more.

1870, September 8.—Second visit to Salmon Stream. C. T. Russell, Jr., shot a Pigeon and I got another.

1871, May 30-June 10.— During this period C. J. Maynard, Ruthven Deane, and I found Wild Pigeons common about the southern end of the Lake, seeing them almost daily, sometimes in pairs, not infrequently in flocks containing twenty or more birds each.

1872, September 17.— Shot a Pigeon from a flock in buckwheat near shore of Wood Pond.

1873, August 29.— Making a boat trip up Cambridge River to-day I saw several small flocks of Pigeons and killed two birds.

1873, September 1.— Pigeons are now abundant about the Lake and collecting in rather large flocks.

1874, August 1.— Shot an adult male Pigeon, in full and very handsome plumage, near the mouth of Peaslee's Brook.

1874, August 4.— Started three Pigeons from the banks of Peaslee's Brook and killed one of them.

1874, August 10.— While William Stone and I were collecting small birds along the Tyler Wood road this forenoon we saw a pair of Wild Pigeons flying high overhead.

1874, August 11.— In the afternoon we saw several Pigeons in a pasture at the foot of Upton Hill at the rear of Mr. Peaslee's house.

1874, August 18.— Early in the forenoon William Stone and I saw about thirty Pigeons flying together in a compact flock low over the swampy forest that borders Leonard's Pond.

1874, August 19.— Finding about a dozen Pigeons feeding on blueberries in a pasture just across the road from Peaslee's house at the foot of Upton Hill I fired several shots at single birds on wing, but without success. Will Stone, who was with me at the time, got one bird.

1874, August 20.— There were not less than twenty-five Pigeons feasting on ripe blueberries and raspberries in the pasture opposite Peaslee's house, when Will Stone and I revisited it late this afternoon. Whenever we entered it they would all rise at once out of range, from the low bushes, and alight together in some tree at the edge of the bordering forest, where it was perfectly easy to approach them closely, for they seemed to have no fear of us after perching thus. Had we cared to shoot at them sitting, we might have killed at least half a dozen, but preferring to take only flying shots we got no more than three. They were exceedingly difficult to hit because of the swiftness of their flight, and of their habit of twisting and doubling abruptly when making off through the tree-tops. Hence very many of our shots were wasted. Even

after having been fired at repeatedly the birds continued to return to the place and to settle again and again among the blueberry and raspberry bushes.

1882, October 8.— I saw a Pigeon to-day near Lakeside Hotel in the township of Cambridge, New Hampshire. The species has now become of very rare occurrence in the Umbagog Region.

1890, September.— Mr. Ferrin tells me that he saw a solitary Wild Pigeon near his farm in Errol sometime in the summer. He says that it was the only representative of the species that he has either seen or heard of during the past five or six years.

Although the notes above given are all that my field-books contain, they fall far short of reporting in full my personal experiences with Passenger Pigeons at Lake Umbagog in the early 70s, when the birds were much too common and familiar to be considered worthy of daily record. The absence of all mention of them in my journals for 1877 and 1878 is explained by the fact that I did not visit the Lake during either year. Although collecting or shooting there from May 22 to June 24, 1879, from May 15 to June 23 and from September 1 to 21, 1880, and from May 12 to 30, 1881, I saw no Pigeons, or at least recorded none, in the course of these three years. My last bird was seen, as already mentioned, on October 8, 1882, and the one reported by Mr. Ferrin in 1890 furnished the very latest instance of occurrence at present known to me. This evidence indicates that Passenger Pigeons ceased to reappear regularly or frequently in the Umbagog Region between 1876 and 1879, while they do not seem to have been observed there at all since 1890, although a few are said to have been met with elsewhere in New England during the following decade, not long after the close of which the species is believed to have become everywhere totally extinct — save in aviaries where captive birds, in small numbers, lived for several years later.

It is difficult for me to realize that there is no longer any possibility of ever again encountering Passenger Pigeons at Lake Umbagog, for they are intimately associated in my mind with the recollection of many an early field-experience there. Between the years 1871 and 1875 we used to see them almost daily throughout the summer and early autumn, sometimes as we were sitting on the front piazza of the old Lake House, oftener during tramps through the woods over the Tyler Road or while paddling up Cambridge River in our canoes. In May, June, and July they were most likely to be found along the heavily-timbered banks of the Cambridge between Abbott's Mill and B Meadows, or in the second-growth larch and spruce woods already overspreading most of the abandoned Tyler Farm. Here, as well as

elsewhere in the forest, they were almost certainly nesting during these months, in scattered pairs, we thought, for they were commonly seen in couples whose lines of flight trended in no particular direction. In August and September they resorted more to the outskirts of clearings and farming lands, to feed on blueberries and raspberries and later on buckwheat, appearing now in flocks of intermingling old and young birds containing anywhere from ten or a dozen to twenty-five or thirty members each. Although frequently to be seen on wing at this season, they were so addicted to wide and erratic roving that there was never any certainty of finding them in any particular place at any given time. For this reason the local hunters seldom took the trouble to seek them during the period to which I am now referring, and comparatively few were killed, at least in the neighbourhood of the Lake. Elsewhere they must have had plenty of bitter experience with man, but failing to profit by it remained so fearless of him up to the very last, that there was rarely much difficulty in getting within fair gun-range of them even in open country where, however, they were less inclined to suffer close approach when feeding on the ground, than after flying up from it into some neighbouring tree-top. They usually chose conspicuous perches on dead prongs, or among leafless branches, and sat there erect, with necks elongated, and almost perfectly in line with the body and tail, looking very long and slender, and remaining perfectly motionless save for occasional nodding, or oscillating, movements of the head as they gazed fixedly at the advancing sportsman with what seemed an expression of blended timidity and curiosity. In order to make them fly I have more than once had to throw stones at them, or to pound the base of the tree-trunk with a stout stick, but the report of a gun invariably caused every bird in the flock to instantly take wing and dash off at full speed. In densely leafy tree-tops, where they occasionally sought shelter, they were always difficult, and sometimes impossible to see, however numerously assembled. I do not recall ever hearing one of them utter a vocal note of any kind at any season, at least in the Umbagog Region, nor can I remember that, like the Mourning Dove, they ever made a whistling sound with their wings when in rapid flight. In other respects their flight was similar to that of the Dove's, but somewhat swifter and at times more erratic and tortuous. As there were no Doves at the Lake we never had any trouble about certainly identifying Pigeons there, but in regions where either species was likely to occur I have often been unable to satisfy myself respecting the identity of single birds viewed at a distance, or in unfavourable lights. For a Dove seen

through mist-laden atmosphere sometimes looked as big as a Pigeon, and when its colour and markings could not be discerned it might easily be mistaken for one, there being really no very obvious points of difference between the two birds in respect to either general appearance or behaviour.

Zenaidura macroura carolinensis (Linné).

Mourning Dove.

Casual visitor in autumn.

On November 9, 1887, I received a Mourning Dove in the flesh from Mrs. Luman Sargent who, in accompanying letter dated at Upton, Maine, on November 5, wrote as follows: "I send you a bird Luman sent me yesterday, * * * He is at his camp hunting with S. E. Morse." The camp thus referred to was on the west arm of Richardson Lake. The Dove proved to be a female in fresh condition, but much emaciated. It was probably killed about the 5th of the month. No other instance of the occurrence of the species anywhere in or near the Umbagog Region has ever been brought to my attention.

BUTEONIDAE.

Circus cyaneus hudsonius (Linné).

Marsh Hawk.

Not uncommon as a summer resident, but much more numerously represented in early autumn when there is doubtless a considerable influx of migrants coming from farther north.

As the Marsh Hawk is constantly present in the Umbagog Region from May to October it undoubtedly breeds there, although I have no knowledge that a nest has ever been found. In spring and early summer it is unusual to see more than one or two birds in the course of a single day, and these are most likely to be males. It often happens, however, that the same individuals are noted more than once daily, perhaps in localities miles apart; for Marsh Hawks are accustomed to roam very widely in their tireless search for prey, and to revisit rather frequently the places where it most abounds. Hence one may easily fall into the error of overestimating the total number of birds within any given area. Bearing this danger in mind I am inclined to doubt

if there are ever more than two or three pairs nesting anywhere near the Lake. Even when its shores are almost everywhere submerged in May, and early June, they are not infrequently included within the regular daily beats of adult male Marsh Hawks in full-nuptial plumage, looking almost as white as Gulls, and indeed not always to be distinguished from them, when seen at a distance skimming low over blue water, or against a dark background of evergreen foliage. Flying ever in the buoyant, unhurried manner so characteristic of their race, now renewing waning impetus by a few deliberate wing-strokes, next gliding for several rods on wings set with the tips held well upwards, much as those of a gliding Turkey Vulture are held, tilting their bodies more or less perceptibly from side to side and rarely pursuing a perfectly straight course for more than a few yards at a time, they may skirt the shore for miles, following all its windings closely, and keeping just outside the outer ranks of living trees, but taking no especial pains to thus avoid outstanding dead ones. For the most part such flight is apt to impress one as unheeding if not perfunctory, but all the while the bird is doubtless keenly scanning every stump and floating log within its range of vision, while every now and then it will hover low over rafts of driftwood collected in sheltered coves, to scrutinize them with obviously eager interest. Apparently its quest for food amid such surroundings is seldom attended by greater success than that resulting from the occasional capture of some unwary frog and even this I do not remember to have witnessed. At this season, no doubt, the birds fare best in the brook-meadows and upland pastures to which they give most of their attention, and in which Meadow Mice or Deer Mice are always to be had for the seeking. In late summer and early autumn they hunt chiefly and, indeed, almost exclusively, in the immediate neighbourhood of the Lake where there are then wide stretches of grass-grown flats and marshes affording conditions perfectly suited to their tastes. Throughout September and the earlier part of October there is scarce a single hour of any day when they are absent from the marshes lying about the outlet of the Lake, or from those near the mouth of Cambridge River. Ordinarily they are seen singly, but sometimes two or three will be in sight at once quartering their ground as systematically as so many well-trained setter or pointer dogs, yet keeping rather far apart and working in different directions. Such independence of movement is customary with them at the Lake as well as elsewhere in New England, but the rule is not without exceptions. Thus on October 10, 1888, I saw three Marsh Hawks and a Pigeon Hawk, hunting together, in the Moose

Point marsh, swept ceaselessly at the time by raging northwest wind, and occasionally by driving clouds of snowflakes. All four birds devoted most of their attention to somewhat less than an acre of surface near the middle of the marsh, circling and hovering over it for many minutes, as if confident that it harboured desirable prey, yet not apparently discovering any until, at length, a Black Duck ventured to settle there, when one of the Marsh Hawks swooped down at her a dozen times or more, causing her to quack loudly. More than this I was unable to see, because of intervening herbage. On going to the little pool in which the Duck had alighted I failed to find her in it, but my dog presently flushed her not far from it in some tall grass where she had doubtless sought shelter when assailed by the Hawk. Shortly afterwards another Marsh Hawk belonging to this same flock made several swift dashes into and through a little company of Yellow-rumped Warblers, scattering them right and left, but failing to seize any of them. Because of all this exceptional behaviour I concluded that the birds indulging in it must have come from some region well to the northward where, as on Martha's Vineyard, the principle of *lex talionis* is perhaps understood by practically all the members of the species to apply to every creature wearing feathers, as well as fur, that can be made to serve as prey. It is not so with the Marsh Hawks breeding or bred in the Umbagog Region for they, almost without exception, are professional Mouse and frog hunters, guiltless not only of bird murder, but also of any desire to attempt it. Of this there can be no question, for on very many occasions I have seen them glide close over or past conspicuously exposed Sandpipers, Swamp Sparrows, and other small, marsh-frequenting birds, without so much as appearing to notice, or to be noticed by them. It must be admitted, however, that a Marsh Hawk which came under my observation near the Outlet on September 1, 1896, a date when migrant birds of this species may, or may not, begin to arrive from farther north, created a positive panic among some Greater Yellow-legs feeding in the marsh, whenever he happened to approach them; but inasmuch as they certainly were not native to the region, and as he seemed to have no thought of molesting them, their fear of him was apparently unjustified unless, perhaps, by sad experience elsewhere with others of his race.

Less susceptible of interpretation favourable to the Marsh Hawk, and difficult of explanation from any point of view, was something I once witnessed in midsummer at Bethel, Maine, and hence within thirty miles of the Lake.

The incident is described as follows in my journal:—

1897, JULY 20.— About nine o'clock this morning I saw an adult male Marsh Hawk cross the wide, open field just to the southward of Dr. Gehring's house, in hot pursuit of a much smaller bird. What the latter was I could not determine, for it doubled and twisted so that its manner of flight gave me no clue and the sun so dazzled my eyes that I was unable to make out its colouring which, however, appeared to be nearly uniform and rather dark. At first I took it to be a Flicker, but just as it reached the edge of some woodland and glided smoothly and swiftly on set wings for several yards, before disappearing among the foliage of a big balsam, it looked and acted more like a male Sharp-shinned Hawk. Whatever it may have been the Marsh Hawk gave it a sharp chase and, no doubt, also something of a fright. When I first noticed him he was about one hundred yards away from me and perhaps fifty feet to the rear of the fugitive bird. Flying at a height of some twenty feet above the ground, which here sloped gently down towards the woods, and lashing the air ceaselessly and vigorously with his long wings, he moved at a speed very unusual for a Circus and soon overtook the object of his pursuit. Of course I expected an impressive tragedy, and watched for it with breathless interest. But nothing of the kind happened, although the Marsh Hawk seemed repeatedly to enfold the lesser bird in his great wings, so that it was quite lost to my sight for an instant, and more than once to strike it so forcibly with his breast (as I thought, although he may have used his bill) as almost to overturn it. That he did not once grasp, or even clutch at it with his talons I was very certain, although he might unquestionably have used them for this purpose had he so desired. While thus in close contact both birds performed bewilderingly rapid and intricate evolutions, twisting and doubling incessantly, now mounting fifty feet or more into the air, next swooping down nearly to the tips of the taller grasses. They separated before reaching the woods, but the Marsh Hawk did not give over the pursuit until he was almost lost to sight among the trees. Then he turned back and proceeded to beat the field in the systematic and leisurely way characteristic of his kind. When I saw him last he was floating off to leeward over some low bushes, drifting like a tuft of thistle, down before strong northwest wind. Why he should have so dealt with the other bird and precisely what it was, are matters concerning which I continue to remain equally in doubt. My impression is, however, that it must have been a Sharp-shinned Hawk and that he was harrying it either in wanton sport, or because it had trespassed on his favourite hunting-grounds. Assuredly it could hardly have been a defenceless bird which he was attempting to make his prey, for in such case he would not finally have permitted it to escape unscathed after keeping it so long within sure and easy grasp of his sharp talons.

To just what extent the Umbagog Region is invaded in autumn by Marsh Hawks coming from farther north, and precisely when such migrants are accustomed to arrive and depart, is uncertain because of the difficulty of distinguishing them from the locally-bred birds

which apparently linger more or less numerously through September, if not into October, also. I am decidedly of opinion, however, that most of the birds which occur during the latter month are not native to the region, for they seem comparatively unfamiliar with it, and disinclined to remain in it for more than a day or two at a time. Sometimes, but not often, one may chance to see them coming in singly from the north and circling high in air before descending to the marshes, or rising to a similar elevation when about to resume the journey southward.

A Marsh Hawk engaged in low and for the most part straightonward, gliding flights is not unlikely to remind one, as has been said, of a Turkey Buzzard similarly employed, because of the decided upward angle, nearly, if not quite, 45°, at which its wings are held, and of the lateral tilting of its body. But when, as often happens, it soars in circles, perhaps hundreds of feet above the earth, its wings are set almost level, like those of a soaring Buteo which it otherwise resembles in general carriage, but from which it may easily be distinguished, even at distances too great to make out its characteristic colour and markings, by its slenderer body, and longer tail. At the Lake I have repeatedly seen Marsh Hawks mount in this manner, with rarely a wing-beat, until they were almost lost to sight overhead, and apparently above the crests of the higher mountains.

It has been both asserted, and denied, on more or less good authority, that Marsh Hawks are somewhat closely related to Owls which they certainly resemble superficially in respect to the character of their plumage, and still more strikingly in facial expression. With this in mind it is interesting to recall how very often I have watched them cruising to and fro in search of prey over Umbagog marshes long after sunset, and perhaps so late into an autumnal evening, that their shadowy forms could be seen distinctly only when silhouetted against water or sky. But while thus given to crepuscular rovings they are unknown ever to indulge in nocturnal ones. Nor is it reasonable to assume that the twilight wandering represents anything more than the prolongation of that tireless activity which they habitually display through the longest and brightest as well as shortest and darkest days. They are so constantly and invariably on wing during all the hours of daylight, that I have never once known a bird, not engaged in incubating its eggs, to remain on the ground longer than was necessary to deal with prey it had just captured, nor have I ever seen one alight elsewhere than on the ground, save twice or thrice when the bird settled within my view on a snag, or perhaps a haypole, rising only a few feet above the herbage in an open meadow, and stayed there not

more than two or three minutes. Just where and in what manner Marsh Hawks spend their nights I do not know, never having encountered any of them after dark, but it seems probable that they must roost on the ground, or perhaps in low bushes, in meadows or fields. As far as I have been able to observe, they seek neither food nor shelter in the depths of mature forests, although by no means averse to hunting among scattered trees, and through neglected fields or pastures growing up to brushwood.

As almost every sportsman and collector knows, it is not difficult to bring even an old and excessively wary Marsh Hawk within close gun-range by imitating the squeaking of a Mouse, provided he who essays the ruse keep perfectly concealed and motionless. Otherwise it is certain to fail, for despite the eagerness and speed with which the Hawk flies straight as an arrow towards the spot whence the sound issues, after locating it with perfect accuracy, perhaps at a distance of more than one hundred yards, he is all the while searching it with eyes so keen and discriminating that the slightest exposure of one's hat-crown, or the glint of a gun-barrel through the leaves is quite enough to cause him to halt and sheer off abruptly. Should nothing be visible to excite his suspicion, he may come almost within arm's reach before discovering that he has thus been deceived. Even then he is by no means unlikely to be missed with both barrels by an expert marksman; for, conscious alike of his extreme peril and of the best means of minimizing it, he will double and twist in the most surprising manner as he makes swiftly off. Such, at least, is apt to be the behaviour of an old male Marsh Hawk under these conditions. Younger birds are sometimes less observing during their approaches, and also less resourceful in their final efforts to escape.

Although most of the Marsh Hawks seen about the Lake in autumn are in brown plumage, and hence either females or young males, the sight of a fully-adult male, wearing, however, a livery somewhat less conspicuously whitish than in spring, is by no means unusual and indeed perhaps no more so than in May and June.

Accipiter velox (Wilson).

SHARP-SHINNED HAWK.

A not uncommon summer resident, and rather frequent migratory visitor in early autumn.

May 12 (1887)–October (1883).

In brief generalizations concerning the local distributions of birds such terms as "common," "uncommon," "rare," etc., are often used

in a relative or comparative, rather than a precise and literal sense. Thus when we speak of any species of Hawk as "common" we mean, of course, that it is so *for a Hawk*, or for a large and conspicuous bird, or perhaps as compared with its own status in other regions. For no Hawk is now actually "common" anywhere; at least in New England, to anything like the same degree as are certain Thrushes, Warblers, Sparrows, etc., to which this same word is currently applied in a corresponding way. Hence my statement, as above, that the Sharp-shinned Hawk is "a not uncommon summer resident and rather frequent migratory visitor" to the Umbagog Region should not be taken to signify that the bird is likely to be seen there daily, or ever very plentifully. On the contrary one may be constantly afield in May or June without noting it oftener than twice or thrice, while it is unlikely to be recorded more than half a dozen times during September, the month of its greatest abundance. This no doubt is partly because it so often eludes human observation by haunting remote depths of the forest where, indeed, it seems to spend most of its time, especially during the breeding season, although appearing every now and then about the outskirts of clearings and also along lake and river shores. Here it is given to perching on rocks, stumps, or snags that rise only a few feet above surrounding mud or water, whence it keeps a sharp lookout for such lesser birds as Titlarks, Swamp Sparrows, Savanna Sparrows, and small Sandpipers. Within the forest and on the borders of upland fields and pastures it preys chiefly on Swainson's and Hermit Thrushes, Robins, Juncos, Peabody Birds, Song Sparrows, and Warblers of various species. I have never known it to molest Chickadees, Kinglets, or Brown Creepers, or Woodpeckers of any kind, but it occasionally kills Blue Jays and perhaps Canada Jays, also. Its invariable method of attack is to pounce unexpectedly on its victims, after watching for their appearance from an inconspicuous, near by perch, or seeking them by successive gliding flights of no great length, performed low over the ground beneath branches that overspread secluded wood-paths, or across little forest glades, or through brush-encumbered fields or meadows. Interrupting such level, skimming flight merely by an abrupt turn or drop, and then pausing but for an instant, the Hawk may continue on its way bearing in its talons some luckless, fear-stupified Warbler or Sparrow which has been plucked from twig or turf with truly admirable dexterity. Or it may achieve similar success almost as quickly, but with greater effort, at the end of a short, spirited dash, made at top speed, and perhaps with reckless disregard of stiff intervening branches. For the most part, however,

the chances favour not so much the Hawk as its coveted prey which, indeed, manages at least nine times out of every ten to escape at the last moment, either by dodging or by gaining secure refuge in some neighbouring thicket. When this happens the Hawk may linger about the spot to swoop again and again, but is rather more likely to depart at once in obvious disgust. Should the lesser bird commit the fatal mistake of flying straight away from cover, its remaining lease of life will be brief indeed, for it is certain to be overtaken and seized before it has gone many yards. But for anything in the nature of a prolonged chase in the open, especially after a bird swift of wing or adept at doubling, the Sharp-shinned Hawk has little inclination, and will rarely, if ever, undertake it.

It must not be inferred from anything which has just been said that Sharp-shinned Hawks are unaccustomed to show themselves conspicuously against the sky, over both lake and forest. But whenever thus observed they are evidently either on their way to more or less distant places, or merely seeking diversion, perhaps by soaring in circles at a considerable elevation, much after the manner of Buteos, but less gracefully and continuously. That they have no thought of hunting at such times is quite obvious, for even the most tempting opportunities of assailing slow-winged birds approached by chance during these aerial wanderings are commonly, if not invariably, disregarded, as I have often witnessed. One such experience is referred to as follows in my Umbagog notes:—

1889, September 6.— Hearing Bluebirds calling I looked up to see twenty-eight of them flying overhead rather high in air, and in loose, scattered order, towards the southeast. Not far from them and at nearly the same elevation was a Sharp-shinned Hawk who kept on practically with the flock for some distance, repeatedly circling close past the outermost Bluebirds without showing any inclination to molest any of them or causing them the least apparent concern.

The customary smooth, level flight of the Sharp-shinned Hawk is sometimes replaced by successive, rather deep, undulations when the bird is flitting from place to place, through dense cover or across narrow woodland openings. On such occasions a small-sized male, imperfectly seen, may easily be mistaken for a Robin. More than once when I have shot at a Hawk of this species in deep forest, and brought it down uninjured save for a broken wing, it has made off over rocks, stumps, and crumbling logs, with long leaps and so very swiftly that I was unable to overtake it and should have lost it but for the prompt use of my second barrel.

It is perhaps doubtful if there are ever more than two or three pairs of Sharp-shinned Hawks resident through the entire summer in the neighbourhood of the Lake and even this may be too large an estimate. Precisely where they are accustomed to breed, or when their eggs are laid, remains for me one of the many unrevealed secrets of the Umbagog forests, where stately hemlocks, spruces, and balsams flourish in such profusion that the Hawk must have difficulty in choosing from among so many of them the particular tree in which it finally conceals its nest. To look for such an inconspicuous object in a wilderness so vast and trackless may well seem to anyone as hopeless as it has invariably proved to be whenever I have attempted it.

Autumnal incursions of Sharp-shinned Hawks presumably coming from farther north are never very obvious, nor considerable, but merely indicated by the occasional presence of single birds apparently unfamiliar with the region, and indisposed to linger in it long. Sometimes they drift over the Lake to the southward without halting, alternately flapping and gliding in their characteristic leisurely way. If such migrants ever appear in flocks, as happens not infrequently elsewhere in autumn, the fact has escaped my attention. Nor can I recall ever seeing any Hawks of this species unmistakably engaged in north-bound migration past the Lake in spring.

Accipiter cooperi (Bonaparte).

Cooper's Hawk.

An uncommon summer resident, lingering well into the autumn.
May 31 (1897)–October 27 (1883).

Occurring somewhat less commonly than the Sharp-shinned Hawk at every season, Cooper's Hawk is seen comparatively seldom near Lake Umbagog in spring or early summer, and by no means frequently in autumn when, however, it is met with oftener than at any other time of year, probably because of the added presence of young reared not far away, and roving about singly. There may also be some immigration of birds coming from farther north, but of this I have no certain knowledge.

Cooper's and the Sharp-shinned Hawk are so nearly related and so very like one another except in size, that their general similarity of tastes, habits, and behaviour is not surprising. Both are lovers of the forest, and disinclined to roam far from it at any time except when pressed by hunger, while their methods of hunting are essentially the same. But of the two, Cooper's Hawk is decidedly the craftier,

warier, and wider-ranging, as well as the swifter and stronger of wing. Its flight is also more direct, and much more suggestive of decision of purpose, and of irresistible momentum. Nevertheless, the bird is less given than the Sharp-shin to hunting on wing, preferring, apparently, to watch for prey from some elevated perch where it may crouch inconspicuous, and quite motionless for half an hour at a time, keenly observant of everything which transpires within its range of vision, and ever ready to swoop on unheeding quarry, or to depart with equal promptitude should some roving gunner chance to appear. As far as I have been able to observe, it is more likely, than most other Hawks, to capture whatever it stoops at, yet not sufficiently so, to succeed oftener than once in every five or six attempts. Its victims are almost exclusively birds, varying in size from that of a Robin to that of a half-grown Ruffed Grouse; but if exceptionally hungry the Hawk may, as I have personally witnessed, kill fully-mature poultry too heavy to be carried off, or, inclining towards the other extreme, may essay the capture of birds no bigger than a Sparrow. An instance of the latter kind which once came under my notice at the Lake is thus described in the journal:—

1896, August 14.— Early this afternoon I was on my way from Lakeside Hotel to the steamer landing when a young Cooper's Hawk came skimming across the Lake. After perching for a few moments in a poplar by the shore, it kept straight on over the wide open field to my left, harried by numerous Barn Swallows. Darting down and striking at its head they evidently annoyed it not a little, causing it to dip or dodge repeatedly. On reaching the road, a little to one side of the Hotel, it wheeled abruptly and plunged headlong into the top of an apple tree, driving out a large Sparrow (*M. melodia*, I thought), which first flew upward and out over the field, where it narrowly escaped the talons of the Hawk, half a dozen times or more, by doubling back at the last moment, and then sought refuge in a dense growth of golden rod and Eupatorium by the roadside. Alighting within a yard of this cover on a stone-wall, the Hawk sat motionless in a crouching posture with its plumage ruffled, and its small head bent downward, watching the herbage intently, but vainly, for the Sparrow wisely kept close-hidden. At the end of about ten minutes the Hawk lost patience and flew along the road to a fence-post, where it perched so stiffly erect, with the feathers compressed so tightly, that it might easily have been mistaken for an upright prolongation of the post. Soon after this it dove into another leafy apple tree, without, however, dislodging anything, and then made for the nearest woods, with several excited Barn Swallows, and a pair of irate Kingbirds hovering close above and darting down on it incessantly, uttering shrill cries. Why, when obviously engaged in eager quest of prey, it should have taken no advantage of an opportunity apparently so favourable for the capture of one of the slow-winged Kingbirds, seems rather surprising.

Yet I have witnessed much the same thing on many another occasion. The only way of accounting for it that has occurred to me, is by the inference that inasmuch as Cooper's Hawk is habituated to taking its victims by surprise, it has little or no inclination otherwise to assail them, preferring to make its murderous avocation yield not only necessary food, but also the greatest possible amount of pleasurable interest and excitement — like human sportsmen who refuse to shoot at game-birds except on wing. However fantastic such a theory may seem, there is not a little really good evidence that could be cited in support of it.

On September 20, 1887, I was paddling a canoe along a wooded reach of Cambridge River not far from its forks, when jets of water or spray flying upward to the height of a foot or more from the further side of a sand-bar attracted my attention. They were presently accounted for by a young Cooper's Hawk which was evidently enjoying a bath in fancied security, but which I ruthlessly shot as it rose from the water's edge and started off across the narrow, tree-embowered stream.

While skirting the edge of a deep and heavily-wooded glen on the north side of Upton Hill, half a mile or more from the Lake, I heard on August 4, 1874, a succession of shrill, squealing whistles repeated at frequent intervals. Cautiously approaching the place whence these sounds came, I presently discovered four young Cooper's Hawks not quite fully grown or feathered, and still tufted here and there with fluffy, whitish down, standing close together in a row on a prostrate log. Every now and then one would unfold and raise its wings, flapping them to preserve its balance, as it took a few unsteady steps along the log, at the same time uttering the whistling cries above mentioned. One and all stood very erect when not in motion, and young as they were lacked little if anything of that stern and dignified bearing so characteristic of adult Hawks at most, although by no means all, times. After watching them awhile I shot one, when the three survivors flew heavily up into a spruce where another was promptly killed, the remaining two being permitted to escape. Neither of the parent birds was seen, but one or the other of them must have captured the half-grown, neatly-plucked Ruffed Grouse which lay on the ground, close to the log, and which doubtless had served not long before to appease the hunger of the piratical brood, for it lacked not only a head, but also a considerable portion of the flesh of the breast. The skins of the two young Hawks taken on this occasion are preserved in my collection. No other birds of similarly tender age have been met with by me in the Umbagog Region. Nor have I ever found a nest of Cooper's Hawk there.

Astur gentilis atricapillus (Wilson).

GOSHAWK.

Of irregular and infrequent occurrence in autumn, winter, and early spring, and possibly in summer, also.

September 10 (1900)–March 25 (1880).

As the Goshawk occasionally breeds elsewhere in northern New England it may do so in the Umbagog Region, where, indeed, I have seen something very like it more than once in spring or summer, but not, unfortunately, under conditions which favoured confident identification of the bird except, perhaps, on one occasion, (August 29, 1895), when I noted quite positively "a large female Goshawk, apparently immature" which "flew from a tree by the roadside" in Grafton not far above the Notch as I was journeying to the Lake by stage. This record may therefore be trustworthy, but if so its importance is lessened by the fact that when the observation was made summer was almost over. In autumn I have met with young Goshawks singly about the Lake on September 25, 1888; October 17 and 22, 1889; September 12, 1894; September 22 and 25, 1897; September 10, 1906. The birds noted on October 17, 1889 and on September 22, 1897, were killed and are preserved in my collection which also contains the following specimens from the Umbagog Region:— an adult male shot in Tyler Cove on October 18, 1897, by my friend the late Charles B. Sherman; an adult female killed with a rifle bullet about November 21, 1896, by the veteran Upton guide, Luman Sargent; an adult female trapped, early in January, somewhere near the Lake, by Will Sargent, (Luman's brother); an immature female (in a plumage differing but slightly from that worn by young in autumn) trapped in Upton on March 25, 1890, by Enoch Sargent.

The records just given are literally all that I have to offer. They would seem to indicate that the Goshawk appears in the Umbagog Region rather oftener in September than in October, which is somewhat surprising, unless we may assume that the birds occurring during the former month come from no great distance, which is quite possible. If later and heavier flights, such as invade other parts of New England every now and then, presumably coming from the far North, ever occur at the Lake they have escaped the notice of intelligent local guides and hunters whom I have questioned on the subject, and who agree in thinking that the Goshawk is at all times and seasons an uncommon bird.

Several of my field-experiences with Goshawks at Lake Umbagog are perhaps worth narrating essentially as they were originally described in the journal and are as follows:—

1887, September 22.— Shortly before sunset this evening I was rowing up the Androscoggin past Sweat's meadow when a Wood Duck crossed the River on wing, and was quickly lost to view among some stubs. A moment later she came flying back at unusual speed with a Goshawk in hot pursuit. The two birds were perhaps thirty feet apart when they first attracted my attention. This intervening space was reduced fully one half by the Hawk within the next one hundred yards, but he failed to overtake the Duck before she reached the middle of the River into which she plunged headlong from a height of fifteen or twenty feet, striking the water with unchecked impetus and instantly disappearing beneath its surface. The Hawk then alighted on a stub whence he stooped at the Duck at least seven or eight times without success. She invariably eluded him by diving, at first before he came very near, but later when she became either more tired or less apprehensive, not until he was within a yard of her, with his feet thrust forward almost past his head and the formidable talons widespread. As she rarely remained under more than a few seconds, and invariably came up within two or three yards of the same spot, he might have captured her easily enough by hovering low over it, but this plan did not seem to occur to him, for immediately after each successive failure he wheeled abruptly and flew straight towards the shore, although twice he turned back again before reaching it, because of exceptionally brief immersion on the part of the Duck. How he could have noticed her thus promptly while facing away from her is difficult to comprehend. As he usually perched (not always on the same stub) no more than six or eight feet above the River and upwards of sixty yards from the Duck, his swoops were made on an almost level plane. For about two thirds of the way he flapped rapidly and ceaselessly, thereby acquiring impetus which did not seem to lessen as he traversed the remainder of the distance on set wings. It was admirable to see him glide thus swiftly and smoothly low over the River, rising slightly and dropping his legs just before reaching the spot where the Duck floated motionless with head and neck erect, apparently paralyzed with fear, yet really no more than calmly conscious of her extreme peril and fully prepared to resort, at the right moment, to the best possible means of averting it. I noticed that when about to go under she half-opened her wings and immersed their tips, perhaps to use them in addition to her feet, as a means of downward propulsion. Indeed, I have little or no doubt that they were so used on this occasion and that the exceeding quickness, very unusual for any Duck, with which she invariably dove was largely due to their powerful action. However this may have been there was no forward spring or arching of the back, or vanishing glimpse of a widespread tail, but simply instantaneous disappearance accompanied by a slight splash and followed by inconspicuous rings expanding over perfectly calm water where the bird had floated only a moment before.

All this happened within the space of a few minutes as my guide and I were slowly advancing in our boat. The Wood Duck showed no alarm at our approach, perhaps realizing that she had nothing to fear from my gun, at least on that occasion. After making a final swoop at her the Hawk attempted to fly past us within thirty yards when I shot him. He proved to be a young bird, certainly not more than five or six months from the nest.

1889, October 17.— Early this afternoon James Bernier and I were skirting the shores of a sheltered cove of the Lake behind Great Island, looking especially for Ducks, when a Goshawk flew up from a grassy spot at the edge of the forest some distance in advance of our boat, and alighted on a horizontal branch of a tall ash standing at the water's edge. Despite the absence of any available cover we approached in the boat, (quietly paddled by Bernier), to within thirty yards of the bird which, up to the moment when my gun brought it lifeless from its elevated perch, remained bolt upright and perfectly motionless save for an occasional up-and-down bobbing motion of the head, not unlike that performed by Sparrow Hawks and Screech Owls conscious of human observation. The Goshawk proved to be a young male and was preserved as a specimen, of course. In its crop I found the flesh, skin, and bones, (not including the skull, however), of a Chipmunk; in its stomach remains of Mice. That a Goshawk may sometimes content itself with such ignoble prey was hitherto unknown to me, at least through personal experience.

1889, October 22.— Near the far end of the hilly pasture that stretches inland from the Lake shore at the Narrows a young male Goshawk flew past me, just beyond gun-range, pursuing a Robin and overhauling it rapidly. When the two birds gained the wood edge, and disappeared among dense young spruces and willows they were scarce a yard apart. Less than a second later a shrill outcry from the Robin proclaimed that the Hawk had seized it. He did not kill it immediately, however, for its agonized cries, growing ever fainter and fainter were continued at intervals during the next following two or three minutes. They moved me to pity and indignation also, despite the fact that my errand in the pasture was not dissimilar to that of the Goshawk. For the gun in my hands might have been used there as mercilessly as he had used his talons, although certainly not on a Robin. Filled with burning, if inconsistent, wrath, because of what seemed at the moment the wantonly cruel murder of this particular Robin, I did, indeed, hasten into the thicket, and shoot at the Hawk as he rose some thirty yards off. But being quick of wing, and only very imperfectly seen through evergreen foliage, he escaped apparently unharmed, bearing away his prey. Scattered feathers from its ruddy breast marked the spot where he had struck it down, and very many from its ashy rump indicated, somewhat farther on, where it was flushed. He looked very like the Goshawk killed near Great Island several days ago (on October 7).

1890, September 10.— Early this morning my friend William Stone and I were standing on the deck of the house-boat when an Osprey, followed by a Goshawk, appeared over the woods that half-encircle the little cove at Pine Point. The Osprey kept straight on towards the Outlet, but the Goshawk

turned back and passed us within thirty yards, flying very swiftly, with ceaseless wing-action resembling that of a Duck Hawk, and heading for a Kingfisher winging its way slowly and unconcernedly along the further shore of the cove. Had the Kingfisher continued such flight for a second or two longer its doom would doubtless have been sealed, but by promptly resorting to doubling and zig-zagging when the Hawk was still thirty or forty feet away it escaped him with surprisingly little trouble. Indeed, he gave over the chase almost at once and disappeared among the trees that fringe the shore.

Like very many birds whose lives are spent chiefly in remote northern forests, the Goshawk is too unfamiliar with man and his destructive ways to regard him with much fear or distrust. Although no swifter of flight than Cooper's Hawk, it seems rather more given to chasing fleet-winged birds, yet not less prone, perhaps, to promptly abandon their pursuit should it prove especially prolonged or troublesome. Essentially similar in respect to haunts, habits, manner of flight, and methods of hunting, the two species are very like one another in form and bearing, also. When in adult plumage and viewed under favouring conditions they may easily be distinguished, of course, by their conspicuously different general colouring, but it is often difficult, and sometimes quite impossible, to certainly identify immature birds seen only at a distance, or in a poor light, whether on wing or perched. For a young Goshawk is coloured and marked almost precisely like a Cooper's Hawk of corresponding age, while the difference in size between a male of the former and a female of the latter species is too trifling to be noticeable.

One of my adult Goshawks from Lake Umbagog (the female taken on November 23, 1896) has the dark markings of its under parts exceptionally coarse and conspicuous, while the plumbeous colouring of its back is decidedly tinged with blackish. Because of these peculiarities the specimen might perhaps be referred to *striatulus*. In the validity of this supposed geographical race I put no great faith, however. For typical representatives of it seem to constitute only a very small proportion of the birds found along the Pacific coast of North America, its assigned habitat, while they apparently occur sometimes, if less often, in interior and even eastern parts of the continent. Nevertheless, it is quite possible that the two forms have different *breeding* ranges, although intermingling more or less freely during autumnal and winter roaming, in which case they may be superficially distinct, of course.

Buteo borealis borealis (Gmelin).

Red-tailed Hawk.

Summer resident, formerly of regular and common occurrence, now rarely seen.

Throughout New England the Red-tailed Hawk has been steadily diminishing in numbers, and deserting one after another of its ancestral haunts, for thirty years or more. In the Umbagog Region it occurred commonly enough (for a Hawk) up to about the year 1890, and not uncommonly up to 1894 or 1895, since when I have noted it but rarely, the date of my latest observation being September 14, 1900. We used to see it oftenest soaring high over the Lake or perched in large isolated trees along roadsides in Grafton or Newry. Although no nest was ever found by any of us, the constant presence of adult birds in June and July, and that of young presumably of local origin in August and September, afforded convincing evidence that Red-tails then bred regularly, if only sparingly, not far from the Lake. They seldom visited its shores to hunt, preferring to seek their prey in remote upland fields and clearings, and to watch for it there from elevated perches in leafless trees that commanded a wide and open view. Thanks to this habit, and to the exceeding wariness of the birds, they suffered little if at all from the hand of man. Indeed, I am not sure that any were ever shot or trapped by Umbagog-frequenting gunners or hunters. Their well-nigh total disappearance of late from a region where they have been so nearly free from human molestation, and where there are still extensive forests of large deciduous trees, would be more surprising were it not for the coincident, and rather general "fading out" of the species elsewhere. This is difficult to explain unless by assuming that, because of recent and widespread destruction of primitive forest-growths, New England *as a whole* has ceased to be attractive to Red-tailed Hawks. If so, their abandonment of the comparatively few and remote woodland areas unscathed as yet by ax or fire is not remarkable. For very many birds, even of large and solitude-loving kinds, will content themselves with breeding-haunts of no great extent, provided there be others similar in character, or equally well suited to their tastes scattered plentifully, far and near, yet will promptly and permanently desert such haunts when most of the others become obliterated. This, at least, has happened repeatedly within my time in eastern Massachusetts. My understanding of it is that there must be general, as well as local,

congenial conditions throughout very much of every given region, else it is likely to lose certain of its birds which, however sedentary of habit, may require environment not lacking in unrestricted room or opportunity for flow or overflow of avian population, for occasional change of feeding-grounds, or for mere purposeless roving. Nor should one fail to consider how essential it must be for birds in migration to follow routes where food and rest may be secured without unusual risk. In view of such considerations it seems possible that the Red-tailed Hawk has almost ceased to revisit the Umbagog Region, not so much because of changed conditions there, as of the changes that have taken place further to the southward, throughout vast areas over which it must necessarily pass to reach more northern forests, and within which it can no longer pause to rest or hunt with any comfort or satisfaction. However this may be, the disappearance of so admirable a bird from many a locality where it was comparatively common not long ago, is truly deplorable.

Buteo lineatus lineatus (Gmelin).

RED-SHOULDERED HAWK.

Formerly of casual, recently of more frequent if not regular, occurrence in summer and early autumn.

To the best of my knowledge and belief it was not until after the close of the past century that the Red-shouldered Hawk began to appear regularly anywhere within or very near, the Umbagog Region. Up to that time I had noticed it there only twice, on June 11, 1879, when a living bird, positively identified by its characteristic voice, flew past me within gun-range along a wooded rock of Cambridge River, not far above Abbott's Mill; and again in early October, 1889, when a dead one was found, with other wantonly-slain and wasted creatures on Moll's Rock where a party of vandal gunners had been encamped. No doubt they shot the Hawk in the immediate neighbourhood of the Outlet. It was a young bird in its first autumnal plumage, too far advanced in decomposition to be preserved as a specimen.

Between June 2 and 22, 1909, however, I saw or heard Red-shouldered Hawks almost daily in the forests bordering on the flooded marshes at the mouth of Cambridge River where there must have been at least a pair of old birds, besides presumably their nest or young in the nest not far away. How long before this they may have been fre-

quenting the Lake and whether or not they have since continued to do so I am unable to say, not having been there myself for more than two or three days at a time in spring or early summer since the year 1900, except on the occasion just mentioned.

The Red-shouldered Hawk was first noted by me at Bethel in September, 1904, when two birds were haunting a belt of swampy woodland near Dr. Gehring's house, and loudly proclaiming their presence by frequent outbursts of shrill screaming. They, or others of their kind, have since come under my observation repeatedly in the same locality. As this has happened only in August and September I cannot testify to their occurrence earlier in the season, although strongly inclined to suspect that they do so occur, and also that they may breed somewhere within the township of Bethel.

That the Red-shouldered Hawk should have remained almost unknown in the Umbagog Region until after the Red-tailed Hawk had practically ceased to reappear, and that not long thereafter it should have apparently established itself as a summer resident in at least two localities, are matters of considerable interest, in view of the fact that throughout much, if not most, of Massachusetts there has been essentially similar and contemporaneous replacement of the greater by the lesser bird. It is true that in the latter state we have always had Red-shouldered Hawks in plenty, as far back as memory or tradition goes, but when there were also Red-tails, in almost equal numbers, the latter birds kept mostly apart from the former, and not infrequently held sole possession, at least during the breeding season, of semiwilderness country sometimes of sufficient extent to stretch over an entire township. Such was certainly the case at Concord where, up to the year 1900 or a little later, one might find half a dozen pairs of Red-tailed Hawks nesting within three or four miles of the village centre, yet seldom or never set eyes on a Red-shouldered Hawk, except in autumn or winter. But when the ancestral haunts of the Red-tail in this and many another Massachusetts town ceased, one after another, to be reoccupied by the stately birds, they were successively and promptly invaded by Red-shouldered Hawks which, thanks to these favouring opportunities, soon became much more generally, if not also more plentifully, distributed in summer throughout eastern parts of the state than they ever had been before, at least within my recollection. If, as seems obvious, the Red-tailed Hawk is never likely to return to us in any numbers, we may at least console ourselves with the reflection that the Red-shouldered Hawk is a scarce less admirable bird, and cherish him accordingly.

Buteo platypterus platypterus (Vieillot).

Broad-winged Hawk.

Common summer resident.
May 11 (1887)–October 30 (1884).

Ever since I first began to visit the Umbagog Region it has been regularly inhabited in spring, summer, and autumn by Broad-winged Hawks in numbers seldom exceeded by those of any other rapacious bird, and varying but slightly from time to time. When I was last there in June, 1909, they were no less numerous than in the earlier years, nor absent from many a haunt also frequented for half a century or more by gunners ever ready to shoot at a Hawk of whatever kind. Unhappily for the Broad-wing it often furnishes such opportunities, having thus far profited so little by sad experience with man that it will seldom take much trouble to avoid him. Moreover, it is given, especially in spring and early summer, to perching conspicuously at the edge of the forest by lake- or river-shores, along roadsides, and in clearings not far from farm-buildings or sportsmen's camps, where it offers a no less easy than tempting mark for the first thoughtless gunner who may chance to pass that way. How a bird thus confiding and venturesome can have continued to maintain itself so long in undiminished numbers where it has been subjected to such persecution, is difficult to comprehend. Perhaps, however, no more Broad-winged Hawks are killed near settlements, camps, rivers, and lakes than are annually reared in the remote parts of the encompassing forest throughout which they breed everywhere in scattered pairs, thereby for the most part escaping human observation unless, perchance, when seen on wing above the tops of the trees. Like nearly all Hawks they are fond of soaring in circles, usually at no great elevation, but sometimes so very high as almost to be lost to view. While thus engaged they commonly utter, perhaps every few seconds, a shrill, far-reaching outcry unlike that of any other Hawk, but not dissimilar to the familiar wailing of the Killdeer Plover, and rendered in my notes as *kee-hèe-e-e*. In calm weather they are less likely to soar high and long than when there is strong wind. Should it be steady and flawless, also, they may breast it to hang suspended on motionless wings for seconds at a time, after the manner of a Kestral. Occasionally they will hover equally long, and at a very great height, with wings flapping continuously but feebly, much as those of butterflies are beaten, screaming all the time excitedly; and then will swoop far earthward to mount and hover

again. This, however, happens only during the season of love-making and probably is one of its characteristic phenomena.

The visits of the Broad-winged Hawk to the shores of the Lake are made oftenest late in May or early June when toads (*Bufo americanus*) are spawning plentifully. It seems to prefer these unattractive batrachians to any other prey, perhaps because they are so easily secured; for at all times when not diverting itself by aerial flights the Broad-wing is one of the most sluggish and indolent of birds, rarely undertaking any vigorous exertion which can well be avoided. Of this its predilection for toad-hunting and manner of pursuing it afford evidence no less amusing than convincing. After alighting on a low branch or stub overlooking some shallow reach of calm water besprinkled with innumerable floating toads absorbed in the cares and pleasures of procreation, and rending the still air with the ceaseless din of their tremulous voices, the Hawk will often gaze down at them long and listlessly, as if undecided which particular one to select from among so many, or dreamily gloat over the wealth of opportunities for such selection. It may finally glide swiftly, yet without effort, along a slight downward incline to a toad forty or fifty yards away, or may drop more abruptly and awkwardly on one closer at hand, flapping its wings at the last moment to check the impetus of its descent. In either case it is almost certain to capture the unheeding quarry which may be borne off to a distant nest or quickly torn asunder and devoured on some near by perch. If this be much frequented for such a purpose, the ground beneath it is likely to become strewn with glutinous strings of toad spawn which the Hawk apparently never eats.

Being thus constitutionally phlegmatic and inert the Broad-winged Hawk is not inclined to the killing of lesser birds. My field-experience has, indeed, yielded no proof as yet that it ever so much as attempts to molest them. On numberless occasions when I have had it under more or less close observation at Lake Umbagog it has not once been known, so far as I can remember, to stoop at anything save toads or frogs. That it also preys on various other feeble or heedless creatures has been evidenced, however, by dissection of birds shot from time to time for my collection. Thus the stomach of an adult male killed at the edge of the forest, not far from the Lake House on June 14, 1876, was filled with the bones of small mammals, apparently Mice, intermixed with fragments of beetles. That of another male of similar age, taken in the same neighbourhood on May 29, 1879, contained the remains of a Red Squirrel, probably an unusual prize. In that of an immature female shot in a hilly pasture near Lakeside on June 10,

1896, I found, besides frog bones, a very considerable number of undigested insects, mostly grasshoppers and dragonflies, with a few beetles scarce half an inch in length. It would be interesting to know just how and where the Hawks obtain such "small game." Perhaps they have repeatedly captured, and at once swallowed it within my view when seen, as has often happened, alighting on the ground in grassy places, and then almost immediately flying off with nothing showing in beak or talons.

It must be confessed that once, on May 24, 1884, the behaviour of half a dozen or more Warblers, Vireos, etc., fluttering with excited chirping, close about an immature male Broad-wing perched over a wood-road not far from the Lake House, did incline me to suspect for the moment that they might have had good and sufficient reason for this hostility, as I knew full well that such is almost invariably the case whenever a Jay or Squirrel is similarly mobbed. The Hawk, however, seemed to have no thought of harming any of them. That he was quite guiltless of bird murder in the then recent past I definitely ascertained by shooting and dissecting him. It must be unusual for Hawks of this species to be thus pestered by little birds, for I have witnessed it only this once although, when spending a few days at Bethel in July, 1907, I noticed that a pair of Broad-wings haunting swampy woodlands near Dr. Gehring's place seldom showed themselves conspicuously on wing without being pursued and harried by one or more Crows, who rose above and darted down at them after the manner of Kingbirds, occasionally pecking at their backs or heads. They bore this persecution with admirable equanimity and, indeed, paid little or no heed to it, unless actually struck by the Crows when they sometimes doubled or pitched upward, or abruptly tilted over partly on one side as if seeking to make use of their talons which, however, were not once aggressively displayed.

Within the forest the Broad-winged Hawk leads, for the most part, an untroubled and sedentary life, contenting itself with such animal food as may be had with the least possible exertion and confining its hunting operations to areas of no very great extent. Although not averse to frequenting flat lands where spruces, balsams, and other evergreens flourish to the general exclusion of deciduous trees, it is most likely to be met with on the crests or flanks of ridges heavily timbered with intermingling hemlocks, beeches, yellow birches, and rock maples of the largest size, or in deep glens watered by sluggish brooks flowing beneath dense canopies of overarching foliage. In such haunts it loves to spend many an inactive if not idle hour, sitting motionless, with

ruffled plumage and listless mien, on some crumbling stub or low-sweeping branch where it is much more likely than not to escape the notice of even the keenest and best-trained human eyes, or to be mistaken by them for a mottled flake of loose bark or a bunch of Usnea moss. Nor are they unlikely to mistake it for a glancing shadow when it is seen imperfectly on wing, gliding Owl-like from place to place among the crowded trees. It might be still oftener overlooked, but for the shrill outcry which it so commonly and unwisely makes when its haunts are invaded by man. This seems expressive of indignant protest because of such invasion, especially when uttered by a bird near its nest.

At least ten per cent of the Broad-winged Hawks occurring about the Lake in May or June wear a plumage distinguishable from that of young in autumn only by its more worn and faded aspect. Such presumably immature birds are, of course, not less than one year old and may be more than that for aught I know to the contrary. Some that I have shot and dissected during the breeding season were apparently unmated, and had sexual organs only partly developed, but the condition of the ovaries of the female killed near Lakeside on June 10, 1896, showed unmistakably that she had laid eggs not long before.

In forests so far-reaching and difficult to traverse as those of the Umbagog Region the most persistent search for Hawks' nests of whatever kind is seldom attended by success. Even those of the ubiquitous and comparatively plentiful Broad-wings are not often found unless by chance, or when betrayed by suspicious behaviour on the part of birds filled with concern for the safety of eggs or young, and not unlikely to evince it by oft-repeated outcries as they flit from tree to tree close about the human intruder, or circle low above him. If, on alighting, they lift and lower their tails frequently and conspicuously, one may feel reasonably sure that the nest is very near at hand. Only two such nests have come under my personal observation at Lake Umbagog. The first, found on June 17, 1876, was at least fifty feet above the ground in the fork of a big yellow birch standing on a hillside that slopes steeply down to the shores of Sweat Cove. Being unprovided with climbing irons and unable to ascend to it without them, I examined it only from the ground. It was evidently new and occupied by a Hawk of some kind, but no bird was seen near it. Hence it may not have been the nest of a Broad-wing, although because of its size, position, and general appearance, I had no doubt at the time that such was the case.

The other nest was some forty feet above the ground, in a large

yellow birch growing several hundred yards from the Lake, on the crest of a heavily-timbered knoll at the rear of Pine Point. Mr. Watrous took me to it on June 8, 1897, when it contained two eggs about to hatch. It was composed mostly of dead and brittle sticks of varying length and thickness, but the shallow depression that held the eggs was generously and attractively lined with fresh green maple leaves and twigs, sprays of unfaded spruce foliage, and bits of dry hemlock bark. As we approached the tree one of the parent birds left the nest. Shortly afterwards both appeared together and continued to fly about, uttering their characteristic cries, until we departed. Some of their feathers clung conspicuously to the outer framework of the nest. Mr. Watrous had much trouble in dealing with the eggs which, however, were finally emptied of their contents through small holes and are now in my collection.

My suggestion (p. 325) to the effect that the recent and very general disappearance of the Red-tailed Hawk from New England may be due to contemporaneous havoc wrought by woodchoppers in our forests is not necessarily discredited by the fact that the Broad-winged Hawk continues to revisit us in undiminished numbers, despite such changes. For although both birds love to dwell in or near wide stretches of more or less primitive woodland, and will rarely breed anywhere else, the Broad-wing is less dependent than the Red-tail on conditions which include the abundant presence of old-growth trees, especially oaks, chestnuts, and white pines, whose massive trunks are devoid of branches to a considerable height above the ground. This being the case I still incline to think that the surmise above referred to may be not altogether unworthy of consideration.

Buteo lagopus sancti-johannis (Gmelin).

ROUGH-LEGGED HAWK.

Of very rare, if not merely casual, occurrence in autumn.

A young Rough-legged Hawk in its first autumnal plumage was shot with a rifle on October 21, 1882, in the marshes at the mouth of Cambridge River, by William Peaslee, a native of Upton, and then living there. Brought down broken-winged by his bullet from the stub on which it had been perched, the bird defended itself bravely by quick and repeated thrusts of its widespread talons, but was finally overpowered and taken to the Lake House where my friend and neighbour Charles F. Batchelder removed and preserved its skin for

his collection. I can give no other record of the occurrence of the species in the Umbagog Region. Why it has not been seen there oftener is difficult to understand, for the extensive marshes about the Lake should attract it, and the Connecticut River valley, which approaches them within thirty miles at Colebrook, New Hampshire, used to be one of its principal routes of migration through Massachusetts. At Northampton, in the latter state, lived two gunners fond of shooting Hawks and very expert at it, who sometimes killed as many as twenty Rough-legs in the course of a single day. They began to hunt them systematically in 1879, and continued to bag them numerously up to 1887 or 1888, but were forced to discontinue the unworthy if exciting sport about 1890, because then and thereafter there were very few if any of the birds to be found in the neighbourhood of Northampton, almost all having been apparently either slain or driven to seek other haunts. The gunners commonly hunted them in an open buggy or a "stone boat," drawn by a well-trained horse over smooth, grassy, interval lands bordering on the River, and shot at them mostly on wing as they flew from the tops of tall, isolated trees, chiefly elms, in which they were accustomed to perch. When approached in this manner they seldom left the tree, until the horse was stopped within gunshot of it. If he kept on past it they were unlikely to fly at all. Yet it was impossible for a man to get near them on foot in such open ground. All this was demonstrated to me on March 17, 1881, when I was driven out from Northampton in a buggy, to be shown how the thing was done. Upwards of twenty Rough-legged Hawks were seen that day, but because of the nervousness of our gun-shy horse only four were killed.

Aquila chrysaetos canadensis (Linné).

Golden Eagle.

Formerly found more or less regularly, if sparingly, at most, if not all, seasons, breeding in one or more localities; now probably absent in summer and of uncertain occurrence at other seasons.

Just after passing through Grafton Notch along the road leading from Bethel to Upton one enters an opening which commands an unobstructed and impressive view of a bare and, for the most part, precipitous cliff that towers above the narrow valley of Cambridge River, here no more than a large brook, to the wooded crest of a northward-trending spur of Speckled Mountain. Looked at from the

road (I have never had opportunity of regarding it more closely) it seems to have an almost or quite vertical face hundreds of feet in height and breadth. Rather nearer the top than the bottom of this is a deep recess or shallow cave very noticeable because so darkly shadowed by overhanging rock and hence locally known as "Eyebrow Ledge." Here Golden Eagles were wont to nest not long ago. At least such has been the confident belief of various worthy people living within sight of Speckled Mountain. Some of their testimony relating to the birds is recorded in my journal or note-books essentially as follows: —

1879, June 7.— Charles E. Ryerson, our present landlord at the Lake House, asserts that a pair of Golden Eagles continues to breed on the vertical cliff of Speckled Mountain which fronts the road above Grafton Notch. He also claims to remember that about twenty years ago a young man was lowered with a long rope by some comrades, from the top of the precipice to the nest which he found in "a shallow cave or den." About it were the remains of Ducks, Geese, Lambs, etc. Young Eagles had apparently been reared in it that season, but neither they nor their parents were seen that day.

1880, May 15.— While driving from Bethel to the Lake to-day I found nailed to the trunk of a pine by the roadside, not far beyond Grafton Notch, an adult Golden Eagle. It had been hanging there so long that all its fleshy parts had either shrivelled or disappeared, but its handsome plumage was intact and for the most part undefaced. The circumstances attending its capture are said to have been as follows: —

In a weather-beaten little farm-house standing within a few rods of the pine lives a woman who keeps a large flock of white and mottled Geese in which she takes much pride. One Sunday afternoon last August (1879) all the members of the family were absent from the place when the Eagle suddenly pounced on a Goose directly in front of the house. Hearing the outcry a child ran at once and attacked the Eagle with a club, but instead of attempting to escape he faced her boldly, still clinging to the Goose. Becoming frightened by his threatening and formidable aspect she retreated to a safe distance and assailed him with stones, finally disabling him by a well-aimed throw just before her parents returned. They, of course, quickly despatched him. As he had literally no white on the tail he must have been a fully-mature bird, if not one that had bred for many a year on the cliff near where his life was ended.

1890, October 14.— Charles E. Ryerson, proprietor of the Lake House, had an interesting experience to-day. While driving through Grafton he saw numerous Crows hovering excitedly over a thicket of alders and plunging into it, one after another, with vociferous cries. Leaving his horses in the road he went to the spot and found there a large brown Eagle. It was standing on the ground eating a Crow which had evidently just been killed. He got within a few yards of it before it rose on wing and attempted to carry off its victim. Being thereby impeded in its flight through the alders it dropped its burden

before winning clear of them into open meadow land, after which it soon disappeared in the distance pursued by the remaining Crows. All this happened within a few rods of the place where the Golden Eagle that attacked a Goose was first disabled by a little girl and then slain by her parents, eleven years ago. Although Ryerson cannot be sure that his bird belonged to the same species, such is likely to have been the case, for Bald Eagles rarely occur in Grafton and are unknown, I believe, to ever prey on Crows.

On June 15, 1896, a farmer named Brooks, living in Grafton to the northward of the Notch, informed my assistant, Mr. C. H. Watrous, that Golden Eagles were nesting even then on "Eyebrow Ledge," the rock-arched niche on the face of the cliff on Speckled Mountain. This story was confirmed by Loring M. Blanchard, a Grafton hunter and trapper very familiar with the mountain, when I questioned him about it some two months later. He further reported that another Grafton man, Davis by name, had tried his best to reach the nest, and failing to do so had pronounced it inaccessible. Both Eagles circled about him and he shot at one of them twice, happily without effect. Various other Grafton people claimed to have seen them that summer, soaring near their ancestral aerie. It was not known that they had tenanted it before for ten or a dozen years. Nor am I aware that it has since been revisited by them. That they should have returned to it once and so recently, after apparent absence for so long a period, is a not less pleasing than interesting fact.

In 1888, I learned from my faithful and intelligent guide, James Bernier, that Eagles had been known by him to breed on the cliff which rises so high and precipitately on the northern side of C Pond, the source of the Dead Cambridge. Some twelve years before that he had seen a pair of them there, flying about a nest which he attempted in vain to reach. As he was quite sure they showed no white on head or tail I have little doubt that they were Golden Eagles.

Mr. William H. Hart, the Game Warden of the Magalloway Region, tells me, (August 25, 1908), that a pair of dark-coloured Eagles, having no traces of white on head or tail, used to nest under a shelving ledge on the face of a vertical cliff fronting on the Diamond River and (I think he said) forming Diamond Peaks. They occupied this aerie regularly up to about 1876, occasionally after this year, and for the last time about 1896. The ledge was inaccessible, but he climbed to a point from which he could look into the nest; he often saw the big birds circling around it. They preyed on the town Geese in Magalloway Settlement to such an extent that the native hunters shot at them repeatedly near the nest and he thinks one or two birds were killed,

but he did not examine any of them. There can be little doubt, however, that they were Golden Eagles.

In the spring of 1898 a young Golden Eagle was caught alive in Andover, Maine, by a farmer who found it on the ground in an open field and ran it down without much difficulty; for although apparently uninjured it was able to fly but little, being scarcely fully feathered and having tufts of natal down still adhering to its head. Hence it could not have then been long out of the nest. Shortly after its capture and while in the condition just described, it was purchased directly from the farmer by my friend John E. Thayer who writes me that he has "always thought" that the "bird flew down from some high cliff near Andover, (and there are several), and could not rise up again" because "too young and feeble." Colonel Thayer had this Eagle in his aviary at Lancaster, Massachusetts, for upwards of ten years. On arriving at maturity it became an impressively-handsome and regal-seeming bird, admired by everyone who saw it. It was fond of playing with a smoothly-rounded stone, almost as big as a grape fruit, and much given to uttering a mellow *heu* not unlike the call of a hen Turkey and similarly repeated from four or five to seven or eight times in quick and even succession, but was unknown to ever make any other vocal sound. By laying two eggs in the aviary it amusingly discredited its name "Sam" bestowed, of course, long before this happened.

Golden Eagles occurred so commonly near Colorado Springs when Dr. J. A. Allen and I were there together in March, April, and May, 1882, that we saw them almost daily. There and then I learned to recognize them quickly and confidently, even when far away, by more or less obvious characteristics of form and flight. This experience has since been of service by enabling me to identify with equal readiness and confidence living birds of the same kind met with elsewhere. That those which have come under my personal observation in the Umbagog Region have not been numerous will appear from the following records which are literally all my notes supply:—

1896, October 4.— As I was sitting on the piazza of Lakeside Hotel to-day an adult Golden Eagle passed first directly over the house and then quite around Sargent's Cove, following the shore-line rather closely, at no great height above the trees, apparently in quest of prey. After this it soared in circles, to somewhat higher elevations, with wings held almost perfectly level except near their tips which bent slightly upward. Its flight now, as well as before, seemed firmer and more graceful than that of the Bald Eagle, and more nearly like that of a Red-tailed Hawk. I could see plainly enough at times

through my field-glass that the splendid bird was quite mature, having a bright, golden brown head and showing no white whatever in the tail. It is the first Golden Eagle I have ever certainly seen living at Lake Umbagog.

1897, June 2.— Happening to glance through a field-glass at Mt. Dustin, from the banks of the Magalloway a mile or more away, I perceived a large brown Eagle circling just above its crest. The bird looked and behaved so like a Golden Eagle that I strongly suspected it was one although unable, of course, to thus identify it confidently at such a distance. Two lesser birds, Crows, I thought, were flying over, and darting down at it most of the time it remained in sight.

1897, September 21.— In two boats, late this forenoon, Henry A. Purdie, Mr. and Mrs. Henry M. Spelman and I entered the shallow lagoon that winds back from the Androscoggin River for a mile or more through Curtis Meadow. As we were approaching its further end where a big brook comes in, an immature Golden Eagle was seen to first poise and then swoop down behind a wooded point, above which the brook expands to form a rather large pool. Just then a Duck quacked loudly there and a second or two later wild fowl of various kinds began streaming out over the trees. First came a single Black Duck, next another with three Wood Ducks, then several Black Ducks, finally a flock of eight or ten birds which we took to be Bald-pates. Last of all appeared the Eagle, with nothing in his talons. Having failed to secure one of the Ducks, he seemed indisposed to follow them or perhaps was deterred from doing so by the report of my gun, discharged at the Bald-pates. Of his subsequent behaviour I shall have something to say presently, after describing that of an adult bird of the same species, seen only an hour or two later in this same Eagle-haunted meadow. With him our experience was as follows: —

Lunch had been eaten near the mouth of the brook and we were still lingering there in a sunny and sheltered spot, somewhat reluctant to again expose ourselves to the keen northwest wind sweeping across the open lagoon, when a Great Blue Heron appeared on wing, following the winding course of the brook. It alighted about eighty yards off behind a tangle of fallen trees that completely screened it from our view. Not long after this a dusky shadow, glancing past us over the meadow grass, drew our attention to a Golden Eagle soaring overhead at a height of no more than three hundred feet. Drifting, presently, over the place where the Heron had settled and evidently noticing the big bird for the first time, the Eagle checked his flight in the middle of a half-completed circle to poise for an instant on rapidly-vibrating wings, precisely as a Kingfisher will hover over a school of minnows. Then he swooped, apparently as straight and vertically as a heavy stone may fall, yet all the while *revolving like a spinning rifle bullet*, if more slowly, thereby showing us his (normally) upper and under parts alternately and making no less than four or five such turns before passing out of sight. Never before have I seen anything of the kind that seemed nearly so wonderful and impressive. As the great bird plunged headlong, from a height of at least one hundred yards, his wings, apparently set and almost closed, made a sound like that of a strong wind blowing through

pine branches. His momentum must have been tremendous as he neared the earth. How it was finally checked and what else transpired behind the line of fallen trees I am, of course, unable to report. Without doubt the Eagle stooped at the Heron and quite as certainly failed to strike it down; for after an outburst of loud and prolonged squawking it rose above the trees and flew off at its very best pace, evidently badly frightened. Perhaps the Eagle had merely been amusing himself by bullying it, a diversion to which all strong-winged birds of prey are more or less inclined. He did not pursue it, but instead came floating back over us again, this time so low, (certainly not above sixty or seventy yards), that I was sorely tempted to shoot at him, especially when, for a moment, he hung almost motionless, gazing down at us curiously. Although evidently adult, he had not fully acquired the rich golden brown of the head, but showed no trace whatever of white in the tail.

The other bird, seen earlier in the day, had the basal half of the tail conspicuously white, the plumage of the head and back uniform in colour, and so dark as to appear almost black. In other words he was what is known as a "ring-tailed" Golden Eagle, certainly very young, and probably not more than four or five months from the nest. After making the fruitless attempt to capture a Duck, he was assailed by an Osprey who kept darting down and striking at him from above, precisely as a Kingbird attacks Crows and other large birds. Every time the Osprey came within six or eight feet of him the Eagle would turn back downward and thrust up both feet with their talons extended, as if hoping to clutch his tormentor. This action was repeated at least half a dozen times, and performed so quickly that it was difficult to follow with the eye, although for a fraction of a second the upstretched legs and wide-spread talons showed distinctly enough against the sky. The Eagle probably turned over and back again in less than a second and executed the surprising feat without apparent effort, or the least appreciable drop from his former level. While thus engaged, both birds were above the middle of the lagoon, at a height of perhaps four hundred feet and some three hundred yards distant from my place of observation.

1898, September 21.— The most interesting birds noted to-day were two Golden Eagles, seen soaring among clouds floating over the Magalloway River near Upper Metalluc Pond. My guide thought they must have been at least a mile above us, and I was not disposed to differ with him.

It is evident that the Golden Eagles of the Umbagog Region seldom visit the shores of the Lake, or those of its connecting rivers, to hunt or indeed for any other purpose. Without doubt they remain almost constantly at considerably higher elevations and probably spend much, if not most, of their time on wing, gliding or soaring tirelessly over remote, treeless mountain-tops and spruce-clad ridges, where they are believed to prey chiefly on Rabbits, Squirrels, Grouse, and other feral creatures of similar size, although by no means unknown to pounce every now and then on a fat Goose or feeble, new-born Lamb,

in some isolated upland clearing. Hence their haunts and habits differ rather decidedly from those of the lake-frequenting, fish-eating Bald Eagles. Compared with the latter birds they are not only more restless, high-spirited, and wide-ranging, but also swifter and more buoyant of flight. When their wings are set rigidly during gliding flight, whether straight onward or in circles, they hold them as those of Buteos, but not of Bald Eagles, are held, that is, almost perfectly level save towards the tips which incline noticeably upward, as with all heavy-bodied birds similarly engaged. Bearing in mind these and other characteristics of habit, flight, and general appearance, one may usually identify a Golden Eagle without much difficulty or uncertainty, if it be seen under reasonably favourable conditions, even where innumerable Bald Eagles having no white on head or tail are equally likely to occur. Nevertheless, the two species are seldom discriminated by Umbagog guides and hunters, some of whom stubbornly refuse to admit that more than one is known or likely to occur, while others constantly mistake young Bald Eagles for Golden Eagles. Both misapprehensions are due partly to careless observation of living birds, and also to the fact that the men so seldom have opportunity of examining a dead or a captive Golden Eagle. Indeed, the only representatives of this species which, to my knowledge, have ever been killed or captured anywhere near Lake Umbagog were the adult bird nailed to the pine near Grafton Notch, which I saw in May, 1880, and the young one obtained alive in Andover by Mr. Thayer, in the spring of 1898. There is, however, a specimen, almost but not quite mature, in the collection of the Boston Society of Natural History, which was shot at Rangeley Lake on September 19, 1890.

Mr. Maynard's Birds of Coos County, N. H. and Oxford Co., Me., includes (Proc. Bost. soc. nat. hist., 1871, p. 27) a statement by me to the effect that Golden Eagles had nested not long before then, near the Profile House in the Franconia Mountains. This was confirmed shortly afterwards by Dr. T. M. Brewer, in the History of North American Birds, 3, which appeared in 1874. His account was evidently based largely on information not derived from mine and dating back to a still earlier period. Hence it would be unsafe to assume that the birds to which it relates were necessarily of the same species as those that I saw at Eagle Cliff in Franconia Notch during August, 1867, and July, 1868 and 1870. Although not doubting at that time and for several years later that my birds were Golden Eagles, I afterwards became fully convinced that they must have been Duck Hawks, and so stated in a foot-note on page 384 of the second edition

of Minot's Land Birds and Game Birds of New England, published in 1895. Some further account of them and of their nesting place, with an explanation of how they happened to have been misidentified, will be given later in connection with what I shall have to say about the Duck Hawk.

Haliaeetus leucocephalus leucocephalus (Linné).

BALD EAGLE.

Occurring commonly, and sometimes abundantly, in spring, summer, and autumn, yet unknown to breed.

May–November.

The Umbagog Region has been a favourite resort for Bald Eagles ever since I first became acquainted with it. Although unknown to breed within or very near its borders, they frequent it at every season when its waters are free from ice, presumably coming from and returning to the seacoast of Maine, upwards of seventy miles away, whenever so inclined. Along that coast their eggs are laid in early spring, sometimes it is said before the middle of March. Hence the appearance at Lake Umbagog in early June of young birds fully feathered and strong of wing, yet evidently no more than a few weeks from the nest, is not so very remarkable. It may be, however, that some of the young occurring thus are reared to the southward of Maine, if not of New England, for young Night Herons tagged in the nest near Washington, D. C., have been taken later that same year as far to the northward as Massachusetts. Most of the Eagles seen about the Lake in spring and summer are sufficiently immature to lack all trace of white in head or tail. Those not more than five or six months old are so dark and uniformily coloured that they look almost as black as Crows, at gunshot distance and beyond. The plumage of maturer birds, varying in age from one to two or three years, is lighter brown, sometimes so bleached or faded as to appear rather greyish. Occasionally, but not often, such a bird will show a large and very conspicuous patch of whitish or even pure white, on its back or breast, or perhaps on both, although without it elsewhere. Whether or not this condition répresents a stage of plumage regularly assumed by the species before arriving at maturity I do not know, but because of its comparative rarity it seems most likely to be abnormal in character.

Although somewhat less given than most diurnal birds of prey to soaring high in air for mere diversion, Bald Eagles indulge in it not infrequently. While thus engaged, those which inhabit the Umbagog

Region sometimes wander rather far and wide over its mountain peaks and ridges. Except on such occasions they remain at lower levels and are scarce more likely than Gulls or Kingfishers to be found elsewhere than in the neighbourhood of waters generously supplied with fish. Few forest-girdled pools or tree-embowered river-reaches are too insignificant or remote to be never visited, and many of no great extent or breadth are much frequented, but at all times and seasons the Lake itself is the chief resort of the indolent, but stately birds. They love to perch on towering stubs or in tall green pines, scattered here and there along its wooded shores, maintaining unceasing if listless watch for the big Chub, Suckers, and Pickerel with which its waters teem in summer. If no such sluggish and easily-captured fish happens to expose itself heedlessly in shallow water close at hand there is always the off-chance of forcing an Osprey to relinquish one that it has just secured and is bearing off to its nest. For the Eagles at Lake Umbagog are said to be no less addicted to this unworthy practice than are those of other regions, although I have never once happened to see them engaged in it.

Of the many Eagle-haunted shores and coves of the Lake those bordering on the extensive marshes lying along Cambridge River near its mouth and along the Androscoggin from the Outlet to below Leonard's Pond are most frequented. In either locality it is, or, at least, has been, by no means unusual to see half a dozen Eagles in the course of a morning. Between Abbott's Mill and the mouth of Cambridge River, or not far beyond, I once actually encountered no less than twenty-five different birds in a single day. That happened late in May, 1889, when the shores of the flooded marshes were thickly strewn with dead Suckers which had evidently succumbed to some epidemic disease, and on which the Eagles were gorging. Since then the same or similar disease has repeatedly attacked the Pickerel in the Lake, regularly every seventh year it is said, killing about all of them. Whenever this has occurred the Eagles have reassembled at the feast but never, I believe, so numerously as on the first occasion.

Bald Eagles resident in our South Atlantic states are known to prey habitually, if not chiefly, on water-fowl, especially Mud-hens, but those which resort to the Umbagog Region seldom or never commit such depredations, being apparently too fond of eating fish, or too easily contented with this diet, to often, if ever, crave food of other kinds. Hence they live quite at peace with all lesser birds, save the Ospreys which they bully and rob, and the Crows and Kingbirds which so love to bully them. On very many occasions when I have

watched them, perhaps for hours, perched on stubs close about which lay shallow pools or muddy flats teeming with wild-fowl or Waders, they have never once been known to so much as threaten any of these birds, or to cause them the least obvious apprehension unless, perchance, the Eagle happened to stoop at a fish that had risen very near a flock of Ducks, when these might be thrown into some confusion lasting, however, for a moment, before their customary avocations were resumed. It is true that I have talked with local hunters who claimed to have seen Eagles attack, if not capture, feathered game, but who, when closely questioned, would seldom attempt to deny that their birds might have been Golden Eagles. Luman Sargent refused to make any such admission respecting an Eagle he once found engaged in eating a Black Duck on the shores of Metalluc Pond, but his testimony was otherwise inconclusive because altogether unaccompanied by evidence to show that the Duck might not have succumbed to gunshot wounds, or to disease before the Eagle took possession of it. It is, perhaps, too much to expect that even a Bald Eagle, especially if very hungry, would be likely to ignore food so tempting and easily obtained; yet no such opportunities have ever, to my knowledge, been taken advantage of by Eagles of this species in the marshes about Lake Umbagog, although occurring there often enough.

I am inclined to think that whenever the Eagle pursues and plunders the Osprey, he does it more for the fun of the thing than because he covets a prize not to be won save at the expense of trouble and exertion far beyond any that he will often undertake for other purposes. Nor does such high-handed and reprehensible robbery of the Osprey seem to be indulged in very frequently anywhere. Temptation to commit it, except for sport, must be especially lacking at the Lake, for there the Eagles seldom have any difficulty in getting an honest living by slight effort, because of the superabundance of large and sluggish fish. During the continuance of spring freshets, Suckers and Pickerel, dead or dying, are washed ashore more or less numerously and eaten greedily by Eagles, even when in putrid condition. Later in the season these and other fish of goodly size are often snatched up while basking in the sun or swimming at or very near the surface of the water. For whenever it suits his needs or whim the Eagle will catch living and vigorous fish quite as adroitly as can any Osprey, although pursuing the sport in a somewhat different way. Thus he commonly stoops at the fish from a tree on shore, along a comparatively slight downward incline, or perhaps somewhat more abruptly, after hovering for a moment over the water at a height no greater than fifteen or twenty

feet. In either case he is likely to capture such prey without wetting more than his feet and legs and never, I believe, will completely immerse himself to secure it as the Osprey does habitually, because accustomed to descend directly from greater heights, with much more impetus.

Certain perches especially favouring observation of waters teeming with lusty and inert fish used to be rarely left unoccupied by Eagles for more than an hour or two at a time during an entire summer, and hence were locally known as "Eagle trees." One of these, a tall dead white pine, stood at the outlet of Leonard's Pond on the banks of the Androscoggin. Another was a living but storm-shattered tree of the same species standing on B Point not far from the mouth of Cambridge River.

There is something peculiar and characteristic about the appearance of a Bald Eagle engaged in flight. Its neck looks relatively longer than that of any other large raptorial bird found in New England and together with the fore part of the body is commonly so raised that the long axis of both neck and body appears to incline slightly upward anteriorly, instead of being nearly level as with most birds. During straight onward flight, performed by alternate flapping and gliding, the Bald Eagle beats its wings less quickly and vigorously than those of the Golden Eagle are beaten, and it bows them more at the "elbow" when they are stiffly set, although the latter difference may be unnoticeable when the bird is circling high.

The commonest and most characteristic utterance of the Bald Eagle is singularly out of keeping with the bird's imposing size and not undignified bearing. Weak in volume and trivial in expression it consists of seven or eight notes given rather quickly, but haltingly and with apparent difficulty, as if their author were choking or gasping for breath. It cannot fitly be called a scream, but is rather a snickering laugh expressive of imbecile derision, rather than anything else. My notes render it thus:— *Ki-ki-ki-ki-ki-ki-ker.* I am not sure that this outcry is ever made by Eagles less than a year old. Younger ones frequently utter a shrill, querulous squealing *pee, pee-e, pee-e-e* having a rising inflection and suggestive of hunger unappeased and insatiable.

If Bald Eagles have bred in or near the Umbagog Region since I began going there the fact has escaped my knowledge. It is true that reports of their doing so used to be circulated from time to time, but only by men untruthful of statement or unable to discriminate between a Bald Eagle and a Golden Eagle, or perhaps even an Osprey.

Indeed more than one nest of the last-named species was actually pointed out to me as that of an Eagle. There were, however, local traditions, credited by almost everybody, which testified that up to the middle of the nineteenth century, or a little later, Bald Eagles had nested regularly, if sparingly, close about Lake Umbagog in the towering and venerable white pines which then grew so plentifully along its shores. This seems not improbable, while there can be no doubt whatever that a nest once found by Luman Sargent, somewhere near Richardson Lake, was that of a Bald Eagle. He took from it two young birds, (there were no more), and had them in captivity for five years. Their general colouring remained essentially unchanged up to the third year when white began to show on their heads and tails, which became wholly white during the fourth year. As this information was originally recorded in my journal under date of July 27, 1874, immediately after it had been communicated to me by Luman, the young Eagles must have been taken from the nest before 1870, and probably were so obtained several years prior to that date, such being the impression given by my notes.

Among the rather numerous entries in the journal relating to the habits and behaviour of Bald Eagles as observed at Lake Umbagog are the following which seem to possess sufficient interest of one kind or another to be worth transcribing here:—

1879, June 7.— Hearing a perfect din of Crow voices coming from a potato field on the knoll behind the Lake House I hastened thither and was not a little surprised to find at least fifty Crows collected about two immature Bald Eagles who were standing close together on the ground near the middle of the field. The entire company rose on wing and made off when I first showed myself, but the Eagles presently returned and realighted to be soon again surrounded by the clamorous Crows. I failed to ascertain what the Eagles were doing there, but because of their presence that of the Crows was not, of course, similarly mysterious.

1879, June 12.— On my way back to the Lake House from a trip down river in a boat I passed near an Eagle perched on a stub. Being without a gun I went to the house for one and returning, paddled the boat to within thirty yards of the Eagle and shot at him. He fell broken-winged and when I landed to retrieve him struck savagely at my paddle with his talons, burying them deep in its soft wood. He was apparently less than a year old and swarming with winged ticks of large size such as infest the plumage of most raptorial birds.

1880, May 25.— A young female Eagle that I shot to-day could not have been more than a month or so from the nest, yet she proved exceedingly tough and difficult to skin. Her flesh smelt strongly of musk. I noticed no ticks in her plumage but it swarmed with small bird-lice.

1889, September 12.— While rowing past Great Island we saw two Bald

Eagles, one adult, the other immature, playing or romping together in the air, much after the manner of sportively-inclined Buteos. Thus one would rise above the other, and then dart down close past it, to mount and swoop again. This was kept up for several minutes. Three more Eagles, and an Osprey were seen later in the day.

1896, JUNE 1.— I tried, this morning, to photograph a large brown Eagle sitting erect on a lateral branch of the towering dead pine at the outlet of Leonard's Pond where birds of this species perch so constantly. Before the camera could be properly adjusted this particular Eagle spread his great wings and stood looking intently in my direction. It seemed obvious that his apprehensions had been excited by my presence until, a few minutes later, he took flight and came towards me, passing within forty yards of where I stood and gliding on set wings down a long, gentle decline to the middle of the Pond, on reaching which he dropped his legs and plunged both feet into the water. The leisurely manner with which this action and the swoop that preceded it were performed led me to think at the moment that he must have espied a dead fish floating on the surface. But just after he had drawn up his feet with nothing in them and was gliding farther on, a large Sucker threw itself into the air at the very spot where he had struck. Instantly the great bird wheeled and returned, to again submerge no more than his feet. This time the Sucker did not escape, but was borne off, writhing pathetically in the strong talons. Carrying it as the Osprey does a fish, that is to say in the grasp of both feet and with his legs dropped well beneath his body, the Eagle took it straight to his accustomed perch and at once began to devour it there.

1897, MAY 21.— Several Bald Eagles frequent the large cove at the northern end of Great Island near where our house-boat is now anchored. We saw two brown ones go to roost there late this afternoon in a hemlock growing not far back from the water. For well-nigh an hour after settling on their perches they kept uttering a loud whistle, repeated several times in quick succession at brief intervals, and so very like the *cleur-cleur-cleur* of the Sapsucker as to be mistaken for that at first by all of us. It was, however, louder and given rather more slowly than is the Sapsucker's call.

1897, JUNE 4.— As we were returning from Bottle Brook Pond, two Eagles, one brown, the other white-headed, appeared on wing over the Magalloway River. The immature bird was carrying something in its talons which the adult kept trying to take from it. They came together a dozen times or more in quick succession, uttering short, shrill screams unlike anything that I remember to have heard before from Bald Eagles.

1897, JUNE 14.— An exceptionally small, dark-coloured young Eagle apparently not many weeks out of the nest, rose from the shore of Great Island, when disturbed by the approach of our boat, and flew to the top of a stub where it perched so bolt upright that it might have been mistaken for an enlarged, upward prolongation of the trunk, a pose rather unusual for birds of this species. We rowed past the stub within twenty-five yards without causing the Eagle to again unfold its wings.

1897, June 15.—An immature Bald Eagle perched on a stub on B Point was harrassed for several moments by a Crow of whose noisy and threatening demonstrations it took little apparent notice at first; but when the Crow alighted on its back about between the shoulders and began pecking at its head, the Eagle spread its wings and swooped down a steep incline to plunge headlong into the Lake where it almost completely immersed itself, thereby escaping for the moment from its tormentor who, however, did not let go his hold until just as the water was reached. This surprising incident occurred within one hundred and fifty yards of our house-boat. It was witnessed from her deck by my assistants, R. A. Gilbert and C. H. Watrous, as well as by James Bernier, our guide, and Charles Tidwell the cook, all of whom agree as to the correctness of the above statement, compiled from their testimony. I, unfortunately, was in the cabin at the time. When I emerged from it the Eagle was back on the stub with the Crow flying about over it, cawing and darting down at it, but nothing more unusual than this happened then or later.

1900, September 9.— Bald Eagles seem to be holding their own about the Lake. No less than five of them, including one adult bird, were seen soaring together over the Outlet marshes to-day, by my friends and companions, Mr. and Mrs. William Stone. Such a sight is not often witnessed here, nor ever has been within my recollection and experience.

1908, August 16.— Eagles are more numerous here this summer than they have been for ten or a dozen years, but less so than they were twenty-five or thirty years ago. I see them almost everywhere about the shores of the Lake, and along its connecting rivers, sometimes to the number of four or five in a day. Never a day passes when they may not be seen almost hourly from our piazza at Lakeside. Fully 75% of those met with by me this month have been white-headed and white-tailed. Formerly (in 1873–1895) it was just the reverse, for the young then greatly outnumbered the adults. I wonder if this means that the nests are robbed oftener now than of yore and fewer young reared. Both old and young are more social than most birds of prey. I often see three or four soaring in company, or perched not far apart along the shore of some little cove. The young are much given to chasing one another in sport, after the manner of young Sparrow Hawks. A fully-adult Bald Eagle is a noble and striking-looking bird, whether seen on wing or sitting erect and motionless on some tall stub. Its flight is at all times graceful and impressive, if habitually rather slow and heavy, but it is capable of moving with exceeding swiftness and direction for long distances which it traverses in an almost straight course, flapping its wings incessantly and very rapidly, somewhat like a Duck Hawk. This I have witnessed repeatedly during the past two weeks, and in former seasons also, but I have never seen a young Eagle perform such a flight. It gives the impression of great momentum. When an adult Eagle is seen at a distance of half a mile or more against a solid background of green foliage, the dark body-plumage is often invisible, but the white head and tail are very conspicuous, showing as two rather widely-separated patches of snowy

whiteness. If the bird be on wing it catches the eye at once and startles the imagination for a moment, however familiar one may be with the sight of it. Bald Eagles subsist here wholly on fish, chiefly large Suckers and Chubs, most of which, I suspect, are dead, or dying, and floating or swimming feebly on or near the surface, for the Eagle never immerses the body in pursuit of them, but on the contrary, picks them up without much apparent effort, wetting at the most only its feet and the lower parts of its legs. Sometimes it glides down towards its prey on a long incline from some tall stub, but much oftener it seeks it after the manner of a large Gull, flying back and forth many times in succession over some cove of the Lake at a height of twenty or forty feet, occasionally circling or even hovering for an instance over some especially promising spot. On discovering a fish it swoops at once on set wings, usually at a considerable angle from the perpendicular, and never, I think, dropping vertically with closed wings, like a Fish Hawk or a Kingfisher. If the prey be secured it is taken at once to the most convenient stub, or perhaps to a large rock on the water's edge, and there devoured. The Umbagog Eagles sometimes rob Fish Hawks, of course, but this happens so seldom that I have never seen it done. Wild-fowl are never disturbed about this Lake by Eagles. I have often seen an Eagle pass low over a flock of swimming Ducks without molesting or even alarming them. Nor are dead Ducks ever picked up by Eagles here. In fact the Eagles do absolutely no harm, and their presence adds greatly to the charm of the Lake.

During the earlier years of my acquaintance with the Umbagog Region its Bald Eagles suffered comparatively little from human persecution there. Of course they were shot at not infrequently, but usually at distances so great that no harm resulted. Indeed such experience was more likely than not to be of positive benefit by teaching lessons of increased caution, before receiving which some of the younger birds might be approached within fair rifle, or even shot-gun, range, perhaps in perfectly open places. The white-headed, white-tailed adults were, of course, much too alert and sophisticated to run similarly needless and foolhardy risks. Nor was it often possible to stalk or waylay them anywhere, however favourable the cover, for their senses of sight and hearing were extraordinarily keen and their watchfulness unceasing. Nevertheless, they seemed unsuspicious of traps, even when exposed to view, and occasionally got caught in those baited with fish and set for Mink at the water's edge on rocky points. For the most part, however, Eagles of every age and condition went unscathed by gun or trap at the Lake for many a year. Comparatively few local hunters or visiting sportsmen really cared to molest them and some would discourage such an undertaking, if suggested, or even interfere to frustrate it, when attempted. Thus two Umbagog guides of my acquaintance, who had reason to suspect that a roving

hunter given to camping about the Lake was systematically trapping Eagles near its southern extremity, tracked him to a place well back in the forest where, confined in a small enclosure of poles, they found and at once set free upwards of a dozen of his birds, but unhappily were too late to save the lives of as many more which, as was afterwards learned, had been killed a few days before and sent in a barrel (they are said to have *filled it*) to a Boston taxidermist, who had not ordered them and would pay for only one, a handsome adult which was skinned and mounted. All the rest being valueless, because immature and also far advanced in decomposition, were consigned to the city garbage cart and finally dumped, no doubt, into the ocean off Boston Light to serve as food for marine fishes. This happened shortly before the year 1890, if I remember rightly. No more heartless, wasteful, and wholesale massacre of impressively large and attractive birds has ever to my knowledge been committed at the Lake. Yet the perpetrator of the deed was by no means an altogether bad sort of fellow and perhaps scarce more lacking in principle regarding such a matter than most of his class and calling. From his point of view Eagles were as fair and legitimate objects of pursuit as anything else, being then unprotected by law in regions about the Lake. Hence he had an undoubted legal right to capture and kill as many as he chose. But neither this consideration nor any other could justify him in killing any of them without first making sure that they could be put to good use. Nor should public sentiment regarding them have thus been disregarded. Nevertheless, he was less blameworthy than many another not similarly dependent on gun or trap for a living, but given to using both quite as ruthlessly, if not wastefully. Moreover, it must be remembered that the slaughter of the Eagles by this backwoodsman for the money he hoped, but failed, to receive for them, would probably never have been undertaken had not men far more enlightened than he remained so long indifferent to the absence of any law safeguarding the impressive and inoffensive birds. But for the rescue of those liberated by the guides there would have been few left about the Lake that season. As it was their numbers were appreciably diminished for a time, but not long afterwards almost or quite fully restored.

Although none the less to be regretted on that account, the losses sustained by Bald Eagles at the Lake on the occasion just referred to cannot have had much if anything to do with their present scarcity there. This, without question, must be attributed chiefly to the fact that the shores which they formerly haunted are now dotted almost

everywhere with sportsmen's camps, and constantly disturbed by the passing of noisy motor-boats. There are, however, a few retired coves not as yet thus frequented by man, where Bald Eagles may still be seen more or less often.

FALCONIDAE.

Rhynchodon peregrinus anatum (Bonaparte).

Duck Hawk.

Of sparing occurrence in spring, summer, and autumn, probably breeding in one or two localities.

Duck Hawks may be seen in the Umbagog Region at every season except winter, and possibly even then. Their visits to the Lake are made chiefly in autumn, when its waters and shores most teem with swimming and wading birds, on which they are said to be especially fond of preying. Even then it does not seem to attract the Falcons often nor are they given to lingering about it long. Nevertheless, they probably breed at no great distance from it on more than one precipitous cliff, although I know of only one which has certainly harboured such an aerie. Nor is it altogether improbable that they may sometimes nest at lower altitudes in hollow forest trees, for to this the Duck Hawk is by no means ungiven in other regions. My personal observation of it in the Umbagog Region has not been extensive. Indeed most, if not all, of this is described or referred to in the following passages taken, without much change of the original wording, from journal or note-books:—

1873, August 28.— The shrill and prolonged screaming of an unseen bird of prey, heard on this date in the forest bordering Cambridge River above Abbott's Mill, was attributed at the time to a Golden Eagle, but really proceeded from a Duck Hawk, as I learned several years later, on becoming familiar with the characteristic outcry of the latter species.

1880, May 17.— Among other Hawks seen about the southern end of the Lake to-day was one of goodly size and very pointed wing, whose shrill screaming proclaimed him to be a Duck Hawk. He uttered it while poised at a height of fully one thousand feet above the earth, breasting strong wind with his wings oddly depressed, especially towards their tips, and quivering or fluttering them in a very peculiar manner. After this had gone on for a minute or so a larger bird, evidently of the same kind and no doubt his mate, rose from woods below to join him in upper air, when the pair went off together.

1880, June 14.— I learned to-day from Eben Barker, who lives in North

Newry not far below Grafton Notch, that Duck Hawks have nested for several successive years within sight of his house, and of the stage-road that passes it, on a narrow shelf in the almost vertical face of "Lightning Ledge," a cliff of no great height. As the birds have caused him much annoyance by taking his poultry, especially young chickens, he has retaliated by despoiling their nest every season, usually of eggs, commonly four in number, all of which have been ruthlessly smashed, he being unaware that they are so highly valued by collectors. Whenever he has climbed to their aerie both Hawks have come close about him, uttering shrill cries. Visiting it three or four days ago, for the first time this year, he took from the nest two young and shot their male parent. All three specimens were so far advanced in decomposition, when brought by him to me at the Lake House this forenoon, that I had to preserve the young in alcohol and experienced some difficulty in making a good skin of the old bird, a very handsome one in fully-adult plumage. It had dark hazel irides and the cere, a space of bare skin surrounding the eyes, the tarsi and the toes, were chrome-yellow, rich and clear in tint. Its stomach contained the remains of unidentifiable birds. The body was exceedingly muscular and heavy, the skin devoid of fat, the plumage wholly free from parasites of every kind. There were two bare breeding spots on either side of the breast and well forward, as with incubating Terns. The young are scarce larger than newly-hatched chickens, and are clothed with white down. They could not have been more than a few days old.

1888, October 6.— We were coasting the marshy shores of the Lake near the Outlet this afternoon when a Duck Hawk was noticed perched on a stump at the water's edge and scarce two feet above it. Before I could train my glass on the bird it took flight and passed us within seventy-five yards, apparently unscathed by either of the two shots that I fired at it.

1888, October 9.— A Duck Hawk seen sitting bolt upright on a stub at Moose Point to-day was evidently a male in fully-mature plumage, as I made out plainly enough through my glass, at a distance of perhaps two hundred yards. We got no nearer before the bird left its perch and sped off low over the Lake, flying as straight and swiftly as a Passenger Pigeon, with similar rapid, ceaseless, vigorous yet easy, strokes of its muscular wings. They looked very long and pointed.

1889, September 26.— As we were passing Moll's Carry on our way down the Androscoggin in a steamer, an adult female Duck Hawk flew towards the Lake, from the top of a stub. Before she left this perch I had a good look at her through my glass, making out all her characteristic markings quite clearly, although she was thus viewed at a distance of not less than two hundred yards.

1894, September 19.— An adult male Duck Hawk was seen perched on a stub overlooking the River near Moll's Carry, as we passed that way in the steamer this forenoon.

1894, September 23.— While bathing in our boat-cove at Pine Point early this morning I heard a Kingfisher rattling excitedly, and looking out over the Lake caught sight of it some two hundred yards away, flying towards me at a

height of fifteen or twenty feet above the water. About thirty yards behind it was a male Duck Hawk coming very swiftly, on rapidly-vibrating wings. Within the next hundred yards or so he overtook the Kingfisher, but when seemingly within his grasp it eluded him by suddenly plunging down into the water with a great splash not, however, completely immersing itself. Nor did it remain there more than a few seconds before mounting into the air to continue its flight. The Falcon meanwhile had been carried twenty yards or more beyond the spot by his exceeding and apparently uncontrollable momentum, but he wheeled back just as the Kingfisher rose on wing, and again overtook it with the greatest ease. This time it kept straight on and I fully expected the Falcon to seize it, but instead, he rose slightly above it, and darting forward close over its back, turned as if to meet it face to face. The Kingfisher had to double then, but being now well within the cove was able to still head shorewards, although obliged to change its course. Once more the Falcon dashed after it, but only for a short distance before abandoning further pursuit, to fly back low over me, when I had a clear view of him, and saw plainly that he was a young bird. Will Sargent, the guide, who also witnessed this interesting chase from first to last, shares with me the impression that the Falcon could have caught the Kingfisher had he really cared to do so, and hence must have been pursuing it more in sport than earnest. No other conclusion seems possible with respect to similar behaviour on the part of another Duck Hawk which I once saw follow and overtake a Lesser Scaup flying over Indian River, Florida. After glancing close past and well in advance of her, with amazing velocity, he wheeled and hovered directly in her path, yet refrained from using, or even displaying, his sharp talons when she passed within easy reach of them. Nor did he trouble her further in any way.

1894, September 25.— Shortly after we had entered the Androscoggin River from the Lake this morning Pectoral Sandpipers were heard calling in the marsh on our right. A moment later upwards of a dozen or more were seen to rise from it hurriedly and fly off, closely pursued by a young male Duck Hawk, perhaps the very same bird that chased the Kingfisher into our boat-cove two days ago. Dashing at headlong speed into the midst of the affrighted Pectorals he separated one from the rest and drove it out over the open Lake. There seemed no chance whatever of its escape, but although the Falcon closed with it thrice in the course of as many minutes, it eluded his talons each time by an abrupt turn. As if discouraged by the third failure, he gave up further pursuit and rose high in air to drift off southward before a strong wind, soaring the while in narrow circles, on set wings. The Pectoral soon rejoined its companions, but they were evidently too much frightened to resume feeding in the marsh and presently left it altogether, going off in the same direction as that taken by the Falcon.

1896, August 20.— About ten o'clock this forenoon I was standing at the boat-landing near the old Lake House when a female Duck Hawk came soaring in circles high overhead. Shortly afterward she shot straight off down a long, gentle incline until over the big, shallow lagoon in the middle of the marsh, and

then stooped several times in quick succession almost, if not quite, to the surface of the water, but at what quarry I could not see because of the distance. Whatever it may have been it must have escaped, for she soon returned with nothing in her talons, to soar again to a still greater height than before, now in company with a small male, no doubt her mate. Both birds looked like adults, but of this I could not make sure. They finally floated off out of sight eastward.

1896, August 26.— A large female Duck Hawk, perhaps the same bird that I saw yesterday, was flying about over the marshes near the Outlet to-day. On coming to the River opposite the entrance to Leonard's Pond she hovered for a moment, at a height of about thirty feet, above a reach free from reeds and rather deep, and then swooped down straight into the water, striking it with such force that she was half-submerged for an instant and sent the spray splashing upward just as does an Osprey when descending on his prey. When she rose on wing again there was obviously nothing in her talons. We thought she must have stooped at a fish and missed it, for we had passed the spot in a boat only a few minutes before without noticing any living creature on the surface of the water.

1896, August 27.— As I was sailing down the Androscoggin in a cruising canoe a large female Duck Hawk, probably the same noted on the 20th of the month, flew swiftly across the River and thence over Moose Point where two Great Blue Herons, evidently alarmed at her approach, rose with loud outcry to soar skyward in spiral courses. They did not succeed, however, in thus eluding the Falcon, for by what was virtually a single, uninterrupted aerial bound, truly wondrous to behold, she mounted above, and then shot down close past them. This was repeated several times in quick succession. It must have been done merely for the fun of frightening the Herons, for no attempt was made to injure them.

1898, August 22.— A female Duck Hawk seen to-day was circling over woods about a mile to the northward of Grafton Notch.

1900, September 2.— As we were passing through Grafton Notch, on our way to the Lake, a female Duck Hawk came soaring over us. Although at a considerable height, she showed distinctly the transverse barring, indicative of maturity, on her under parts. Continuing to circle on set wings like a Buteo, but with superior ease and grace, she soon faded out of sight in the distance. I wonder if the aerie on Eyebrow Ledge where Golden Eagles once nested may now be occupied by Duck Hawks.

1909, June 7.— Early this afternoon a male Duck Hawk was seen high in air to the southward of where our house-boat lies anchored in Cambridge River. After soaring in circles for several moments he sped straight and far away in a southeasterly direction, on rapidly-vibrating pinions. They appeared very long, narrow, and sharp-pointed. His general colouring was so dark that he looked almost black against the sky.

No other bird of my acquaintance, except, possibly, the Hooded Merganser, which I have never seen put to such a test, can outfly the

Duck Hawk or perhaps, even keep pace with him for a few seconds, although that might conceivably be accomplished by a Ruffed Grouse or a Bob-white, doing its very best. When the high-spirited Falcon is under full headway he cleaves the air with well-nigh meteoric velocity, lashing it ceaselessly with his narrow, shapely pinions. Although their peculiar vibrating or quivering motion seems almost effortless, it doubtless calls for much exertion on the part of the great pectoral muscles which originate it. From such a wing-driven projectile as a Duck Hawk moving thus, the birds he pursues, however swift-flying or resourceful, have no chance whatever of escape, except by doubling at the right moment, or by gaining sanctuary in dense cover. The success which so commonly attends recourse to the former tactics, even by birds relatively slow or feeble of wing, is doubtless due largely to the exceeding speed and momentum of the impetuous Falcon's flight. For although this enables him to overtake the fastest-moving birds of other kinds with no less ease than certainty, it often foils his attempts to seize those given to sudden turns or erratic twistings, because he cannot with equal abruptness check or deflect his own headlong career, but must keep straight on for several yards, at least, before doing so, and hence constantly overshoots the mark. His supposed preference for water-fowl, as prey, and reputed prowess in dealing with them, may therefore be due largely to the fact that they are no more capable than he of abruptly devious flight. Within my personal experience, however, he has never been known to trouble any of them save on one occasion, and then the bird he singled out was suffered to escape unharmed when obviously quite at his mercy, as has already been related. To the best of my knowledge and belief he commonly seeks in wilderness places, at least in New England, birds other than Ducks and of considerably lesser size. When abiding near the haunts of men he evidently prefers domestic Pigeons to all other quarry, probably because they are not only plentiful, but also easily obtained, being habitually unsuspicious and ungiven to either indirect or very rapid flight. In winter he will sometimes hunt them fearlessly and systematically for weeks, if not months, where they most abound in the heart of large cities, perching to devour them on lofty buildings and strewing the ground or pavement beneath with the slaty-blue feathers of his numerous victims. All this has happened repeatedly of late in the city of Washington, and at least once in Boston.

In the Birds of Coos Co., N. H. and Oxford Co., Me., published in 1871, some youthful experience of mine among the Franconia Mountains, with birds supposed to be Golden Eagles, was referred to by

Mr. C. J. Maynard who quotes me as affirming that "A pair have bred for years on the cliff directly over the Profile House. They could be seen at almost any hour of the day scaling about their eyrie, uttering loud screams, but were especially noisy and active from sunset to dark." No doubt I did use these very words, having then no reason to suspect that the birds which my father and I had watched summer after summer, between 1867 and 1870, from the piazza of the Profile House, were not Golden Eagles. As such they were known to everyone thereabouts including local hunters who claimed to have viewed them near at hand from above their inaccessible nest on the face of Eagle Cliff. That its name was justified, if not originally suggested, by their presence, no one then doubted. Such a belief was shortly afterwards confirmed by no less authority than that of Baird, Brewer, and Ridgway, in their History of North American Birds. For the text relating to the Golden Eagle on page 316 of volume three of this work, issued in 1874, contains the following passage written, of course, by Dr. Brewer: "In Franconia, N. H., for quite a number of years, a pair occupied a nest on an inaccessible rock, near the top of a mountain, known as Eagle Cliff, in sight of, and opposite, the Profile House." This is followed by the interesting statement that as long ago as "the summer of 1855" a party of men attempted "to scale the precipice over which the shelving rock, on which the nest stands, projects," but were able to "reach only a point beyond and above, not the nest itself." They "reported a large collection of bones in its immediate vicinity, with other evidences of the accumulated plunder of many years." It is possible, although not, in my opinion, probable, that the birds breeding there then were Golden Eagles. However that may have been, there is no doubt whatever that those seen by me in the summers of 1867, 1868, and 1870, were Duck Hawks. Of this I fully satisfied myself in after-years. Had it been known to me in the earlier ones that the shrill and prolonged screaming so freely indulged in by the Duck Hawk, especially near the nest, is perfectly diagnostic of the species and wholly unlike anything that the Golden Eagle ever utters, the mistaken identification just alluded to would not have been made. It was corrected by me in a foot-note on page 384 of the second edition of Minot's Land Birds and Game Birds of New England, published in 1895. Nevertheless, Dr. Brewer's statements relating, at least in part, to the very same birds, have since been quoted, almost in full and apparently without distrust, by Dr. Glover M. Allen in his List of the Birds of New Hampshire, which appeared in 1903.

To fully appreciate the exquisite modelling of the Duck Hawk's

wings one must see them clearly displayed against the sky when the bird has set them to soar in circles, or else must spread them reverently after it has been killed and taken in hand. He who can regard them attentively in either of these ways without profoundly admiring them must sadly lack appreciation of all beauty resulting from perfect harmony of form and outline.

Tinnunculus columbarius columbarius (Linné).

PIGEON HAWK.

Transient visitor in spring and autumn, occurring regularly and commonly at the latter season.

May 16 (1881); August 30 (1873)–October 10 (1888).

I have met with the Pigeon Hawk in the Umbagog Region only once in spring time, on May 16, 1881, when a beautiful adult male, perched on a stub near the mouth of Cambridge River, permitted me to pass him within twenty yards. If the species ever remains in the region through the summer my notes fail to afford evidence of the fact. They furnish one record, it is true, of a bird shot on August 30 (1873) in the Cambridge River marshes, but he was probably an exceptionally early autumnal migrant. Pigeon Hawks, evidently moving southward and presumably returning from breeding grounds lying considerably farther to the northward, often begin to appear only a few days later than the date last mentioned. They always come regularly and sometimes rather plentifully (for Hawks) in the course of the next three or four weeks, but are seldom if ever seen after October 10. Journeying thus towards winter quarters in the South, without either especial haste or tardiness, and for the most part singly, they occur oftenest about the shores of the Lake and along those of its connecting rivers, apparently preferring these well-watered lowlands to all other haunts in the surrounding region, although by no means unknown to also frequent upland grass-fields and brush-grown pastures, where scattered stubs or fence-posts afford perches that command an unobstructed view. For the Pigeon Hawk hunts chiefly in either treeless or semi-open country and is rarely to be found anywhere in unbroken forest, unless, perhaps, when breeding. Some of the more interesting experiences that I have had with it at or near Lake Umbagog are described as follows in my notes:—

1880, SEPTEMBER 2.— As we were entering the mouth of Cambridge River from the Lake, at sunset this evening, a Pigeon Hawk flew past us and alighted

on a bare mud-flat near a large flock of Peeps (Ereunetes). Strange to say, it seemed to regard them with indifference, nor did they show any fear of it. Before we could approach within gunshot it again took flight.

1880, September 9.— Three Pigeon Hawks, seen together early this morning near the mouth of the Cambridge, were chasing one another over and among some tall stubs, like so many Swallows playfully inclined. Later in the day we were watching a Solitary Sandpiper feeding on a muddy shore of the Androscoggin at the outlet of Leonard's Pond when the bird suddenly set up a loud outcry, and flew off over the River closely pursued by a Pigeon Hawk. He overtook it before it had gone many yards, but when almost within his grasp it eluded him by abruptly dropping into the water. Although it did not completely immerse itself, the Hawk kept straight on to a stub, where he sat watching the Sandpiper as it first swam quickly ashore and then crouched under a shelving part of the river-bank. No doubt he would have stooped at it again had I not shot at him, without effect.

1888, September 19.— I saw a Pigeon Hawk chase a Flicker this morning, evidently without serious intent, for he turned back, after going only a few rods, and flew to a tall stub uttering, while still on wing, a rapidly delivered *kla-kla-kla-kla-kla-kla* almost precisely like the familiar outcry of the Sparrow Hawk. In general appearance and behaviour, also, he resembled that bird very closely. There can be no question as to his identification, for I shot him. As he was falling wing-broken from his lofty perch he made a peculiar shrill twittering sound exactly like that which the Sharp-shinned Hawk often emits when similarly wounded. I have noticed lately that the Pigeon Hawk is scarce less accustomed than the Sharp-shin to flirt its tail every now and then when perched, especially soon after alighting, or just before taking flight.

1888, October 9.— All day long the landscape was obscured by clouds of big, damp snow-flakes, driving ceaselessly before a raging northwest wind. They accumulated in heavy masses on evergreen branches, and also loaded the stalks or blades of weeds and grasses, while the entire face of the country was whitened by them, except in moist places free from all vegetation where they melted almost or quite as fast as they struck. This was especially the case along the shores of the Androscoggin, around those of Leonard's Pond, and throughout the neighbouring marshes, where many stretches of more or less muddy ground remained perfectly free from snow. About these were congregated Thrushes, Warblers, Sparrows, and other small, storm-bound, migratory birds, in countless numbers. Titlarks were particularly abundant. As I was watching not less than one hundred of them circling over the marshes, a Pigeon Hawk dashed repeatedly into the midst of the crowded flock without capturing any of its members, although one was finally separated from the rest, and pursued for upwards of five hundred yards. The Hawk rose above and stooped down at it fully twenty times in quick succession, with lightning speed and faultless grace. More than once I thought he had it in his talons, but it always eluded them at the critical moment by an abrupt turn or twist. This he could not seem to follow, but invariably descended straight for several yards

farther before checking his impetus, to mount and swoop again. All the while the Titlark was nearing, if by devious courses, a dense thicket of alders into which it plunged at length, to be seen no more. The mortification and disgust of the Pigeon Hawk, because of his ignominious failure to capture the affrighted and feeble-winged little fugitive where every condition favoured such an attempt, seemed obvious enough, when, at the close of the chase, he flew listlessly across the marsh to a distant tree. Perhaps it was because of such lost self-respect and with some thought of thereby restoring it that he began harrying an unoffending Crow not long afterwards, just as a human bully may correspondingly behave when similarly humiliated.

1888, October 10.— Another wintry day, not unlike yesterday, but colder and with less snow falling. It now covers the ground to fully an inch throughout the forest, but the shores of river, pond, and marsh remain mostly bare. They were thronged from morning to night with weather-bound migrants equalling, if not exceeding, in numbers and variety those seen yesterday. We certainly saw more large birds, especially rapacious ones, among which I noted no less than six Marsh Hawks and four Pigeon Hawks. One of the latter met with a strange fate. Just as we were about to land from our boat at the head of a lagoon, this bird came flying past and was brought down by my gun, falling through the branches of a leafless maple standing on the edge of a swampy forest. Believing him to be dead, and having certain other matters to attend to, we did not look for him until ten or twelve minutes later. He was no longer under the tree, but the surface of the snow there furnished an unmistakable record of what had befallen him. It was deeply indented and soaked with blood where he had first fallen. Thence he had clambered somehow to the top of a stub no more than two feet high and also crimson-stained. Leading directly to this tree was the track of a Red Squirrel; trending away from it was the same track with a blood spot about two inches in front of each double imprint of the fore paws. Here and there we noticed, also, light impressions evidently made by the primary quills of a dragging or dangling wing. From all these signs, so clearly written in the fresh-fallen snow, we inferred that after happening to see the Hawk fall the Squirrel had run forth from the forest to secure him, and then had carried him off. The trail was followed until it led into a tangle of alders and fallen trees where it had to be abandoned. Of course the testimony of the snow could not be doubted or misinterpreted. Even had it been possible for me to mistake the foot-prints of a Mink, a Sable or a Weasel for those of a Squirrel, which I do not admit, it is simply inconceivable that my guide, James Bernier, could thus have been misled, for he has had too much experience as a trapper of fur-bearing animals in Canadian, as well as Maine, forests to commit any such blunder. No! the creature that carried off the Hawk was beyond question a Red Squirrel. We were left in some uncertainty, however, as to whether or not it had killed him before doing so. As there were no marks of any struggle in the snow about the stump or elsewhere, the chances are that the Hawk was almost, if not quite, dead when the Squirrel first reached him. That it should have ventured to lay hold of

him at all seems sufficiently surprising, but even more so is the fact that it could have borne off so heavy a bird, to such a distance, without once suffering more than the tip of his wing to touch the snow.

1889, September 14.— As Henry M. Spelman and I were paddling up Cambridge River past the mouth of Peaslee's Brook we saw three little Falcons, believed to be Pigeon Hawks, playing in the air about the tops of tall, clustering trees in which they alighted frequently for a moment. With them were several Blue Jays and one Canada Jay, all frolicking together happily, apparently on terms of perfect friendliness. I landed and followed, but could not overtake, them.

1890, October 7.— A Wilson's Snipe which had just escaped our guns in the marshes near the Outlet rose high in air to circle widely over them, after the common habit of its kind, when a Pigeon Hawk appeared and pursued it for a minute or two. He quickly overtook, but was unable to seize it, although its flight was no more devious than that to which Snipe are habitually given, for apparently it did not take him seriously or at least try especially to elude him. Several times he shot past it so closely that for an instant both birds seemed merged into one. Once he first darted under it, and then turned sharply upwards, as if trying to strike his talons into it from beneath, but this attempt, also, proved a failure. At length the Snipe pitched down into the grass and the Pigeon Hawk sped onward without troubling it further.

1895, September 10.— The shrill outcry of a little Falcon, coming from the further shore of our cove at Pine Point as I was bathing there early this morning, sounded exactly like that of a Sparrow Hawk, but its author proved to be a Pigeon Hawk. He was either playing or fighting with a Crow, the former I thought, for although the behaviour of both birds was rough and aggressive, it seemed to represent mutual participation in a sportive game curiously regulated and much enjoyed. Thus the successive lungings and chasings were not either one-sided or haphazard, but so conducted that each bird alternately took the part of pursuer and pursued, and when enacting the latter rôle gave way at once, or after the merest pretence of resistance, to flee as if for its life, dodging and twisting; yet it was prompt enough to rejoin the other bird at the end of such a bout, when the two would rest awhile on the same stub, perching only a few feet apart and facing one another, perhaps not without some mutual distrust. During these aërial evolutions the Hawk screamed and the Crow uttered a rolling croak, almost incessantly. They separated and flew off in different directions when my presence was finally discovered.

Later in the day we saw another Pigeon Hawk alight on a stub overlooking the Androscoggin River near the entrance to Leonard's Pond. When our boat was brought within close range of the bird I perceived that he was a handsome old male, but before gun could be raised to shoulder he darted off so swiftly that I missed him with both barrels. Not long after this, and less than one hundred yards farther on, we noticed ten or a dozen Yellow-rumped Warblers in a leafless maple that overhung the water. They were flitting and hopping about somewhat more actively than usual, but with no especial show

of excitement and in perfect silence. After watching them for a moment I happened to glance toward the centre of the tree and was not a little surprised to discover there, sitting bolt upright and quite motionless, a third Pigeon Hawk of the same sex as the second, but immature. That the presence of his statuesque form in their very midst was exciting much interest or curiosity among the Warblers, yet occasioning them little if any alarm, became now evident, for they kept approaching him within four or five feet, always from *above*, however, as was doubtless prudent on their part, although he seemed to disregard them altogether, keeping his gaze fixed on the ground beneath as if seeking there something more worthy of his attention. Despite such preoccupation he escaped me as the other Hawk had done shortly before, by sudden and unexpected flight, just as I was about to shoot at him in the tree.

1895, September 24.— About seven o'clock this morning a Pigeon Hawk drove a flock of ten or a dozen Blue Jays into the birch grove near our camp on Pine Point and during the next ten minutes circled or hovered low over or near them. As long as they remained perched he made no attempt to attack them, although the foliage was everywhere too thin to afford them much shelter. Nor did they stay in it long at a time, being too restless and venturesome. Whenever one rose on wing above the trees and tried to steal away, as happened every half-minute or less, the Hawk instantly gave chase, vibrating his pinions ceaselessly, rapidly, and tremulously, as those of the Duck Hawk are moved on similar occasions, and flying with such exceeding velocity that my eyes could scarce follow him. His lavish expenditure of speed and energy in pursuit of the slow-winged Jays seemed almost as absurdly needless as that of a race horse might be were he employed to run down a cow or a goat. Of course I expected to see the Hawk capture his prey at the end of every swoop, especially when, with evident eager hope of such result, he checked his impetus more abruptly than birds of his kind are often able to do and thrust forward his widespread talons; but the Jay always dodged them at the last available moment by dropping suddenly into a tree-top. After keeping straight on for a short distance the little Falcon would then circle and rise to make ready for renewed assault. He never hovered directly over the Jays when they were in the trees, but invariably kept well off to one or another side of the flock, as if to offer them what might seem a tempting chance to escape, although it may have been done for the purpose of enabling him to avoid steep descent when making his dashing swoops. These were ordinarily from twenty to forty yards in length, and trending so slightly downward that the total drop was no more than six or eight feet for the entire distance which was often covered by the Hawk before the Jay had flown one quarter as far. Altogether his admirably swift and graceful forays furnished one of the most beautiful and interesting spectacles of the kind that I have ever witnessed, despite their unvarying ill-success. Although appearing to make them in dead earnest he may, perhaps, have been merely amusing himself. Such, apparently, was the impression of the Jays; at least they did not take him seriously enough to seem very much afraid of him.

1896, September 5.— About sunrise this morning I witnessed the pursuit of a Semipalmated Sandpiper by a Pigeon Hawk in the marshes opposite Leonard's Pond. The chase led directly towards me and when the two birds came over a shallow pool some fifty yards away the Hawk overtook the Sandpiper, setting his wings just before doing so. By a sudden turn it dodged him and before he could wheel to follow gained a fresh start of several yards which, however, proved of little avail, for he quickly overhauled it a second time, flying three feet to its one. Again it doubled, thereby achieving its final escape, for the Hawk kept straight on over the marsh to distant woods beyond. Immediately after this the Sandpiper flew to the little pond already mentioned and alighted among numerous birds of its own species which had been feeding there all the while in seeming unconcern. Whether or not it originally belonged to this flock I am unable to say.

1896, September 8.— A female Pigeon Hawk, flying very swiftly just above the tops of the taller grasses, passed me within ten or fifteen feet as I stood fully exposed to view in the marshes near the Outlet, watching a small flock of Semipalmated Sandpipers feeding close at hand. As they happened to be motionless at that particular moment the Hawk may have failed to see them, or may not have cared to molest them because of my presence. However this may have been, it kept straight on past them and quite across the marsh to a forest of stubs on the river-bank beyond.

1897, September 15.— Shortly before sunset we flushed a Swamp Sparrow from the grass in a flooded meadow bordering on the Magalloway River, near Pulpit Rock. The little bird flew to a thicket of bushes, and was just disappearing among them when a large female Pigeon Hawk dashed in after it, going quite out of sight and making a loud swishing and crushing sound as her wings or breast came in contact with the dense foliage. The Sparrow must have escaped unharmed, for the Hawk reappeared only an instant later to glide past us within a few yards, showing neither legs nor talons. They would have been more or less exposed, of course, had she captured any prey.

1897, September 30.— Early in the forenoon a Pigeon Hawk alighted not far from me on a branch of the now decrepit old elm that stands on the bank of the River near the Lake House landing. Here the bird remained for some time, sitting very erect, and moving only his head which was frequently turned from side to side, and occasionally bobbed up and down in a manner similar to that so characteristic of the Screech Owl. At length he left his perch to skim swiftly off over the neighbouring marsh. When almost lost to sight behind some intervening trees he suddenly changed his course, inclining to the left toward a loop of the River. Only a second or two later a Solitary Sandpiper began calling there excitedly, and then was seen to plunge from on wing into the water well out from shore, no doubt because of some sort of aggression on the part of the Hawk, although that I did not see. He could not have followed the Sandpiper out over the River without exposing himself to my view, and probably did not linger anywhere near it long, for it remained in the water no more than a few seconds and then mounted high into the air to fly far away, uttering its shrill *peet-weet* cries almost incessantly as if still affrighted.

Perhaps I have entered overmuch into detail concerning the experiences above described. To me they seem worth repeating in full because no one, however constantly afield in wilderness places, can hope to have very many like them in the course of a life-time, and also because their testimony tends so uniformly and surprisingly to discredit the reputed prowess of such Falcons as the Pigeon Hawk and the Duck Hawk. That it has been greatly overestimated by writers on the subject appears evident. As far as my personal observation, not only at Lake Umbagog but elsewhere, goes to show, at least these two representatives of the Falconidae are by no means expert catchers of birds which resort to doubling when pursued, albeit themselves surpassingly fleet of wing, and equipped with strong and needle-pointed talons. Perhaps their repeated failures to strike down fugitive birds within my view have been exceptional, or the Falcons may be even more given than I have thought to merely wanton pursuit of uncoveted quarry. As will be gathered from what I have already said, their habits and haunts in the Umbagog Region are not dissimilar, while their characteristic manner of flight and methods of attack appear to be essentially the same. Being a relatively lighter and much smaller bird, the Pigeon Hawk cannot achieve momentum equalling that of the Duck Hawk, although it is apparently no less capable of remarkable bursts of speed.

Manuscript notes relating to Pigeon Hawks taken at Lake Umbagog and preserved in my collection remind me that I found in the stomach of a young male, shot on September 11, 1873, "grasshoppers in large numbers" and nothing else; in that of a second specimen of the same sex and similar age, killed on September 19, 1873, "grasshoppers and the remains of an adult male Goldfinch"; in that of a third (the one seen to chase a Flicker), obtained on September 19, 1888, fragments of "birds" that could not be determined specifically; in that of a fourth, taken on October 11, 1888, "a Sparrow" which apparently was not identified.

The mention of the Goldfinch in the connection just referred to recalls two instances of the capture of a bird of that species by a Pigeon Hawk, which came under my observation in the Cambridge Region very many years ago, during the month of September, if I remember rightly. On both occasions the Goldfinch was flying across an open field, unaccompanied by any other birds, and being either unconscious of danger or too affrighted to act otherwise, it kept straight on so that the Hawk had no difficulty in capturing it at the end of his very first dash. The pursuit of an equally unheeding or bewildered Barn Swallow by a Pigeon Hawk, which I once witnessed at Concord,

Massachusetts, terminated in precisely the same way. On no other occasion, during field-experience extending over more than half a century, have I ever actually seen a Pigeon Hawk strike his victim.

Cerchneis sparveria sparveria (Linné).

Sparrow Hawk.

Common summer resident.
May 13 (1881)–October 9 (1889).

From early in May to the end of September or a little later, the Umbagog Region is inhabited by Sparrow Hawks, and has been as far back as memory or tradition goes. Being rather wary and very fleet of wing, as well as too inoffensive and inconspicuous to attract much notice, they suffer little from human persecution and vary only slightly in numbers from year to year. Although roving everywhere on wing, even over remote and unbroken forest, they seldom linger long, especially in spring, elsewhere than in rather open country. At every season lake or river shores besprinkled with stubs and bordering on marshy ground, upland grass-fields or bushy pastures dotted here and there with isolated trees, living or dead, and burnt lands overgrown with low blueberry bushes, are favoured above all other resorts. In such places one sees the pretty little Falcon oftenest and most numerously in August and September, for then both old and young, alike emancipated from parental cares and juvenile dependence, are everywhere abroad, for the most part singly, but sometimes three or four together. Although now free to roam wherever they list, they rarely absent themselves long from their accustomed haunts before the time arrives when all must depart on south-bound immigration. Of course there may also be some autumnal influx of birds bred farther to the northward, but if so it has not attracted my notice.

During various years of a now rather remote past we used to meet with Sparrow Hawks frequently in May and June about the southern end of the Lake, especially among the dead or dying trees which then stood by hundreds, if not thousands, along the banks of Cambridge River near its mouth and around the shores of neighbouring marshes, always flooded at that season. Being given to conspicuous flight and perching, the Hawks probably seemed more numerous than they really were, but there must often have been at least two or three pairs breeding within the area just indicated. Their nests were difficult to find because of the superabundance of tree cavities which might, or might not, contain them, but every now and then one would be located, usu-

ally by seeing a parent bird fly to or from a hole in the top of some towering stub. On the few occasions when such success fell to my lot it profited me but little, for the stub was so invariably weakened by decay that it could not be climbed without too much risk to life and limb. Thus has it happened that my collection contains only a single set of eggs of the Sparrow Hawk obtained at Lake Umbagog and these, four in number, were taken by a local hunter, Daniel Hayward. He found them early in June, 1885, in the deserted nest of a Flicker, lying, as the eggs of that bird always do, on a bed of small fragments of decayed wood unmixed with other material.

Although my manuscript records relating to observation of Sparrow Hawks in the Umbagog Region are rather numerous, they furnish but few notes possessing any especial interest or, at least, novelty, and certainly no more than two worthy of reproduction here; these run as follows:—

1881, May 17.— A pair of Sparrow Hawks are haunting the shores of the flooded river-meadows near the Lake House with the evident intention of breeding somewhere there. To-day I saw them sitting not far apart on the tops of neighbouring dead balsams. Every now and then one, always the male, I thought, would mount high in air to fly very rapidly, in a wide circle over and around where the other was perched, bending the tips of his wings downward and quivering them incessantly, at the same time uttering a shrill, clamorous *kee-kee* cry, oft repeated. Sometimes both would start off together, to chase one another far and near, describing all manner of beautiful curves and occasionally sweeping down almost to the surface of the water. On realighting they invariably chose the very topmost twigs, often very slender ones, and settled on these with no less abruptness than precision, yet with admirable grace, scarce checking their speed until the perch was well-nigh reached and just then deftly folding their shapely wings.

1888, September 12.— In a broad expanse of hilly burnt ground bordering on the Dead Cambridge above the Sluice we saw a Sparrow Hawk amusing himself at the expense of two Flickers. Calling *clac-lac-clac-lac-clac-lac* he would first hover over them for a few seconds, and then dart down close past them, to rise and hover again. Whenever they took flight he accompanied them, describing graceful curves and circles above and around them. That all this was done without malice on his part seemed obvious, and the Flickers evidently so interpreted it, for they showed no fear of him and more than once flew into a tree where he had just settled, alighting within a few feet of him. I followed all three birds for some distance, but failed to overtake them. They continued to keep together as long as I kept them in sight.

My notes refer to other instances of equally harmless aggression on Flickers, but mention none which concern other birds molested

thus or otherwise, although making frequent allusion to not dissimilar behaviour on the part of Sparrow Hawks romping with one another, to which they are much inclined, being of all New England-frequenting Raptores the most light-hearted and frolicsome. Especially so are the young in early autumn when as many as three or four of them may often be seen gamboling together over or among the stubs in some sunny cove, dashing hither and thither with admirable grace and spirit like so many playful Swallows, and with no more display of ill temper. Such behaviour is most likely to be indulged in not long after sunrise, when the weather is clear and warm.

To the best of my knowledge and belief the Sparrow Hawks of the Umbagog Region are one and all guiltless of bird murder. I have found only grasshoppers in their stomachs and have never seen them stoop at anything save these or other insects, some of which are occasionally caught in the air, perhaps while flying at a considerable height, although most are picked up from the ground in grassy places.

If, for any reason, the distinctive colouring of a Sparrow Hawk cannot be made out the bird may easily be mistaken for a Pigeon Hawk, the two species being much alike in respect to voice, size, shape, behaviour, and customary manner of flight. It would be interesting to know which of the two can fly the faster. That I have never seen put to the test, but it seems to me probable that if the Sparrow Hawk were to accustom himself to hunting lesser birds instead of grasshoppers, he might overtake the swiftest of them by developing bursts of speed not inferior to that of any other Falcon.

PANDIONIDAE.

Pandion haliaetus carolinensis (Gmelin).

Fish Hawk. Osprey.

Common summer resident.
May 12 (1897)–October 10 (1888).

Fish Hawks have frequented the Umbagog Region time out of mind, coming to it as soon as its water-ways are free from ice in spring and leaving it on southward migration late in September or early in October. When I first visited it and for upwards of twenty years later they still bred here and there in scattered pairs, never in colonies, around the shores of the Lake and along the broader reaches of near by

rivers such as the Androscoggin and the Magalloway. In every part of the Lake they might then be seen daily, if not hourly, circling or hovering one hundred feet or more above it, singly or in pairs; plunging headlong into its murky waters whenever a lusty Chub or Sucker was sighted there; almost or quite disappearing for an instant amid a smother of flashing spray upthrown by the impact of their heavy bodies on the surface; winning free from this a moment later by a few vigorous wing-strokes; finally flying off to favourite perches or nests with captured fish, perhaps a foot in length, writhing hopelessly and pathetically in the vise-like grasp of their strong talons. In calm summer weather their musical whistled calls, not unlike those of the Purple Martin, but much louder, fell pleasingly on the ear at frequent intervals, coming from far and near over the shining Lake. Most of the native hunters and visiting sportsmen liked to see the Fish Hawks about it and would seldom molest them in any way, although every now and then a bird might be shot at or its nest robbed of a handsome set of eggs, either wantonly or for preservation in somebody's collection; mine, however, has never happened to acquire either skin or egg of the Osprey taken at Lake Umbagog.

Most of the nests situated near the Lake were visible from it, being conspicuously placed on the broken-off tops of huge white pine stubs standing within a few rods of the water's edge, commonly in the neighbourhood of the Outlet. In September, 1889, I saw two such, not far apart on the island in Leonard's Pond. One looked old and delapidated, the other as if it might have been occupied earlier in the season, as did a third nest, noted that same autumn on the banks of Rapid River just above what is known as Cedar Swamp Landing.

Although Fish Hawks continued to frequent the Lake in undiminished numbers for several years after the date just mentioned, they ceased almost immediately thereafter to breed on its shores and along neighbouring river-reaches. Since then I have found their nests only well back in the forest, sometimes on elevated ridges two or three miles from open water but there, as elsewhere, always in trees that towered high above all others near at hand, living or dead. In June, 1897, a nest could be seen from the Lake near Moll's Rock, on an exceedingly tall and slender stub, apparently that of a black ash, which stood about one eighth of a mile inland; there was another within sight of Curtis Meadow, although fully half a mile away, crowning a pine stub near the base of a heavily-wooded ridge.

On May 15 of that year I watched an Osprey, presumably a female, collecting building material about the shores of the Lake near the

mouth of Cambridge River and taking it overland in a southerly direction to a nest which we failed to locate. She kept coming and going during the entire day, at rather infrequent and irregular intervals, always following precisely the same route and appearing only once in company with her mate. Doubtless to serve as lining for the nest she usually carried off in her talons a single long and trailing shred of bark, but once a large wisp of marsh-grass hay was thus taken.

About a week later (on May 24) I saw what may have been the male of this same pair mount to an immense height above the Lake near Great Island, to drift off slowly eastward over the forest, poising or hovering all the while on set or loosely-flapping wings, uttering almost ceaselessly a shrill, screaming *cree-cree-cree* wholly different from the ordinary musical outcry of his kind. All this was kept up fully fifteen minutes. Of course it represented the characteristic love-flight of the Osprey, often witnessed at the Lake in early spring, and not unlike that performed by several other species of Hawks found in New England. Finally a female Osprey appeared, swinging around and around in wide circles a thousand feet below the other bird. He, however, continued to hover, flutter, and scream at his former level. Two days after this (on May 26) three Ospreys entered a large cove at the northern end of Great Island, where our house-boat was anchored at the time, and flew around it together, making its shores ring with their loud, musical voices. Their evident excitement may have been due to the fact that one was carrying a small fish in its talons, but neither of the other two made any obvious attempt to rob it of this prize; nor did a Bald Eagle, when he happened to pass on wing within a few yards of the Osprey trio.

Many a lake or river-reach formerly haunted alike by Ospreys and Eagles ceased to be so soon after the close of the last century, because increasingly disturbed by sportsmen and fishermen, some of whom did not scruple to mar, or perhaps utterly destroy, the primitive beauty of wooded points or islands by erecting thereon log or framed houses, miscalled camps, about which tree and shrub growth that should have been left untouched was ruthlessly sacrificed to open up unobstructed views. Even more disturbing to large water-frequenting birds was the introduction of those abominable nuisances, the noisy and ill-smelling motor-boats, which began to appear in 1907 and multiplied exceedingly in the course of the next four or five years. Despite all these deplorable changes or innovations there were a few Fish Hawks lingering about the Lake when I last saw it in June, 1909, and no doubt they revisit it still. Perhaps it is not too much to hope

that they may some day return to it as numerously as of yore, if only the gunners can be made to let them alone. That no effort should be spared to safeguard from all human molestation birds so impressively attractive and essentially inoffensive goes without saying.

STRIGIDAE.

Asio otus wilsonianus (Lesson).

LONG-EARED OWL.

Permanent resident, perhaps not uncommon although seldom noted.

For obvious reasons it is difficult to learn much about forest-haunting Owls through personal observation of them. One may spend the better part of a life-time afield in places where they especially abound, without becoming really familiar with any of them. Such has been the experience of many a professional guide or hunter in the vast forests which encompass Lake Umbagog, and the sparse settlements about its southern end, stretching thence as far as eye can reach in every direction. Throughout this still primitive wilderness the birds keep either so closely hidden or so aloof that they are rarely seen by any one, although proclaiming their common presence everywhere by frequent nocturnal or crepuscular outcries. At least all this is true of the Great Horned and Barred Owls among the larger kinds and of the Saw-whet among the smaller ones. The Long-eared Owl, however, is scarce oftener heard than seen, while the Snowy Owl, Hawk Owl, and Short-eared Owl are habitually silent, although not unaccustomed to showing themselves by daylight in treeless or semiopen country. Besides these seven species which are known to occur more or less regularly and numerously, there are the Great Gray Owl and Richardson's Owl, which probably visit the region occasionally in winter, and the Screech Owl, which has been taken just below Grafton Notch in Newry, but no nearer than this to the Lake.

In Umbagog forests as well as elsewhere, the Long-eared Owl is apparently one of the most retiring and inconspicuous of tree-frequenting birds. Never once there has its voice reached my ears by night, while I have encountered it by day only twice, on June 11, 1879, when a bird, flitting from tree to tree with a mob of excited and clamorous Crows in hot pursuit, was met with in dense woods in the township of Cambridge, New Hampshire, not far from what is now Lakeside Hotel; and on an early autumnal date, unfortunately mislaid, but probably

about the middle of September, 1887 or 1888, when another bird was seen shortly after sunset, flying rather high in air over the crest of Hedgehog Hill, in Upton, Maine. A third instance of occurrence is attested by a specimen in my collection which, freshly killed, was brought to me at the Lake House by Daniel Haywood who shot it as late as nine o'clock on the night of October 17, 1885, as it was flying about in bright moonlight, low over the water in the Narrows of the Lake. These are all the definite records furnished by my notes. Despite their paucity it would not surprise me to learn that the Long-eared Owl is a regular, if uncommon, frequenter of the Umbagog Region. For such is reputed to be the status of a bird locally known as the "Screech Owl" which almost certainly is none other than the Long-eared Owl, if intelligent Umbagog guides and hunters have not misinformed me respecting it. They assert that it is about the size of a Partridge (Ruffed Grouse) and coloured much the same; that it has very conspicuous "horns" or ear-tufts; that it occurs sparingly at every season throughout the forest, to which it is strictly confined; that although rarely seen by day, it sometimes shows itself fearlessly about hunters' camps at night, indulging there and then in outcries described as more startling and blood-curdling than those produced by Owls of any other species. Once only has anything of the kind happened at my camp and then, by an unlucky chance, I was absent from it overnight. According to the testimony of my men the bird that visited it on this occasion kept them awake for upwards of an hour by its outrageous clamour, perching all the while in a leafless tree where it was very plainly seen, being well within the circle of light cast by a blazing fire. To have missed thus narrowly an opportunity so favourable for first listening to a characteristic serenade of the so-called "Screech Owl," and then settling the bird's identity by shooting it, seemed, of course, peculiarly unfortunate. Nevertheless I have, perhaps, heard the same sounds in Massachusetts on occasions referred to as follows in my journal:—

1874, June 12.— Half an hour after sunset this evening I was hastening through woods of intermingling pitch pines and red cedars near Arlington Heights when a faint, intermittent *crick-a-crick*, not unlike the squeaking of an ungreased wheelbarrow, attracted my attention. It seemed to come from a dense growth of cedars in a hollow towards which I had taken only a few steps when the still air was rent by a dozen or more piercing shrieks, given in quick succession, and all alike save that each was a trifle less loud than the one immediately preceding it. Altogether they lasted almost half a minute and suggested the screams of a terror-stricken bird in the clutches of a Hawk, but

were much louder and more startling. They constituted a fitting prelude to the spectacular appearance, only a second or two later, of their author, a large, female Long-eared Owl, who suddenly pitched down to the ground about thirty yards away and stood facing me with ruffled plumage and glaring yellow eyes. Her widespread wings were so held that the tips of the outermost primaries touched the carpet of pine needles at her feet and those of the innermost secondaries met over her back, the other quills radiating outward between them. Although, as I have said, she faced me, the *outer*, not inner, surfaces of both wings were shown in my direction. Owing to this singular disposition and inversion of all the flight-quills, they formed what appeared to be a large, erect, circular fan of evenly-spread feathers completely surrounding the head and body of the bird. Standing thus with threatening mien and menacing, swaying movements of the head, she looked like some impish, malformed creature half beside itself with rage. Not long after this she flew to a low branch and there gave the shrieking outcry a second time. Shortly afterwards she left the woods and flitted hither and thither among tall, scattered locusts in a rocky pasture. Here she hooted every now and then, always uttering a deep, low *whoo-whoo*, never of more nor less than two notes and very like the sound which one may make by blowing forcibly into the bung-hole of an empty cask. Still later, when it was almost dark, she began shrieking again. Her mate, a much smaller bird, now appeared and glided close past me in perfect silence. Before following the female into the pasture, I had traced the wheelbarrow-like creaking sound to a couple of young Owls, almost fully grown and feathered, but still retaining tufts of whitish, natal down. They were crouching in a nest made of sticks in a cedar about twenty feet above the ground.

1874, June 13.— Early this afternoon I revisited the Owl family finding one young bird in the nest; the other on a branch beside it; their parents in near by trees from which both flew at my approach, the male sluggishly and in silence. The female was so active and wary that it was almost impossible to get within gunshot of her. She went through all the performances noted last evening; flying restlessly to and fro among the crowded trees; alighting frequently in them to hoot, and still oftener to utter her piercing shrieks; occasionally plumping down on the ground to face me with outspread wings. All this behaviour was evidently inspired by maternal anxiety for the young, if not also designed to lead me away from them; nevertheless, it seemed very surprising that an Owl belonging to a species habitually so inert and silent except at night should be thus active and vigorous by day, especially as the sun was shining brightly at the time. When I climbed to the young in the cedar they faced me just as their mother had done when on the ground, holding their wings in the same peculiar manner, but making no sound other than a sharp clicking one, as they snapped their bills menacingly, and a low snoring one, apparently emanating from their nostrils.

1886, June 11.— In several respects my experience with the family of Long-eared Owls met with at Arlington Heights in June, 1874, was duplicated late

in the forenoon to-day when I happened upon two young birds of the same species in white pine woods near Ball's Hill, Concord. They were perched together on a fallen branch about five feet above the ground, to which they must have fallen or fluttered down not long before, from a nest that could be seen high in a pine directly overhead, for having wing-quills scarce more than one half grown they were incapable of level flight. When closely approached they behaved precisely like the young found in 1874, and made essentially the same sounds, although the blowing ones heard to-day were less suggestive of "snoring" than of the hissing or "spitting" of an angry house-cat, and the *crick-a-crick* calls seemed more like the chirping of a field-cricket than the squeaking of a wheelbarrow.

As I stood within arm's reach of these young Owls, regarding them intently, their mother appeared in the pine above, descending through it by fluttering from branch to branch with feeble, butterfly-like wing-beats, uttering first a loud, dismal groan; next a low whining; finally a deep, hoarse bark. No one of these utterances resembled any of those employed by the mother Owl observed in 1874. Immediately after giving vent to the last of them the bird pitched heavily to the ground almost at my feet and stood there facing me for a moment, in the grotesque attitude already described, before flying back into the pine. All this was repeated several times. When perching in trees the bird assumed normal and commonly very graceful poses. She did not once shriek or hoot within my hearing, nor was her mate seen or heard.

The use of so much space for narrating experiences that happened elsewhere than in the region to which the present work especially relates, would perhaps be ill advised were it not that they afford evidence which indicates that the "Screech Owl" of Umbagog forests is probably one and the same with the Long-eared Owl, and without which such an assumption might seem unjustified. Lest they also serve unduly to discredit my statement to the effect that the Long-eared Owl is not often loquacious, it may be well for me to add that, excepting on the occasions above mentioned, I have never once heard adult birds of this species utter any sound. Yet they occur at every season in Massachusetts woodland through which I stroll frequently by night, as well as day, and where the insistent nocturnal calling of their hungry young, two or more weeks from the nest and scattered about in the tops of lofty pines, has often reached my ears in midsummer. It differs then from the *crick-a-crick* of young still in the nest by being much louder and by having its three syllables more slurred or run together.

Asio flammeus flammeus (Pontoppidan).

SHORT-EARED OWL.

Not uncommon transient visitor in autumn.
September 6 (1887)–October 24 (1885).

The Short-eared Owl is the only representative of its family which regularly passes through the Umbagog Region on south-bound migration in autumn, coming from breeding grounds presumably lying farther northward. In September and October it occurs sparingly, but not uncommonly, chiefly in wide, grassy marshes bordering on the Lake, where one may occasionally flush it in the daytime or oftener see it flitting hither and thither in the evening twilight. Although for the most part given to haunting treeless places, it sometimes retires by day into evergreen thickets on the outskirts of the forest. The following notes describe some of the more interesting experiences that I have had with it at or near Lake Umbagog:—

1885, OCTOBER 24.— Late in the forenoon I was crossing a neglected upland pasture at some distance from the Lake and forcing my way through a dense growth of young spruces and balsams eight or ten feet tall when an Owl flapped out from one of the balsams, about on a level with my head. Before it had flown many yards I shot it. To my surprise it proved to be a Short-eared Owl which, of course, was preserved for my collection. Its stomach contained the remains of Mice and nothing else. Why this bird should have sought shelter in so unaccustomed a place is difficult to understand. The day was cloudy, calm, and, for the season, warm.

1889, SEPTEMBER 23.— When Henry M. Spelman returned to camp from Moose Point this evening he had an interesting story to tell concerning a Short-eared Owl. It was first seen by him not long after sunset, flying about low over the marsh, apparently in quest of prey. On coming to a pond where a flock of Black Ducks were feeding, it swooped at them many times, uttering loud, nasal cries somewhat like those of a Great Blue Heron and repeated every few seconds for upward of a minute. Although it probably had no intention of harming any of the Ducks, they seemed afraid of it, quacking and splashing loudly every time it stooped at them. Spelman thinks they dove also, but that he did not see. When, at length, the Owl glided close past him he shot at it without effect. Perhaps attracted, rather than repelled, by the report of his gun, it soon returned and was again missed, but venturing on similarly fearless approach for a third time it then paid the penalty for such foolhardiness with its life. When in the Moose Point marsh last evening, after it was too dark to see even a large bird on wing, I heard several outbursts of intermingling sounds like those which Spelman describes. No doubt they

were similarly occasioned by a Short-eared Owl — perhaps the very one killed to-night.

1893, October 8.— Late this evening I was standing on the outer shore of Moose Point when a Short-eared Owl suddenly emerged from the gloom that enshrouded the neighbouring marshes. As it glided past me within a few feet its noiseless, wavering flight suggested that of some gigantic moth. After keeping on well out over the Lake it turned and came back, to fall broken-winged on the sandy beach, at the report of my gun. When I stooped to pick it up it made an odd snoring sound, and also clicked its bill threateningly as most Owls are accustomed to do when similarly disabled and apprehensive of capture.

1895, September 22.— Shortly after sunset this evening a Great Blue Heron alighted on the south side of Moose Point and soon began making a loud outcry there. Presently it rose and soared in circles to a height of two hundred or more feet, followed, or rather preceded, by a Short-eared Owl, who bullied it for several minutes with amazing audacity. He kept always a little above it except when swooping down, as happened every few seconds, to strike it forcibly on the back, but whether with beak or talons I could not make out. The big, clumsy Heron seemed unable to either repel or dodge these assaults. During their continuance it did nothing but circle, croaking incessantly and, when struck by the Owl, squalling so lustily that it might have been heard half a mile away. Quite evidently it was badly frightened. The Owl, without doubt, was merely amusing himself. He soon tired of the sport and leaving the Heron sped off on a long, downward slant towards Richardson Carry. Some fifteen minutes later he reappeared, skimming low over the Moose Point marsh, apparently seeking prey. Flapping his broad wings a few times every now and then, but for the most part keeping them set, he glided smoothly and silently just above the tops of the taller grasses, inclining now to the right, next to the left, and not infrequently wheeling back to again beat over ground just traversed. In these and other respects his flight and methods of hunting closely resembled those of a Marsh Hawk similarly employed. Twice or thrice he rose sharply to a height of ten or fifteen feet and then with equal abruptness dropped almost to the level of the marsh to resume more wonted flight. This evolution was very like that commonly performed by Night-hawks feeding over open fields in evening twilight and doubtless was undertaken for the same object, viz. the capture of flying insects, perhaps in this case big Dytiscus beetles such as occur abundantly about Lake Umbagog. Darkness was now gathering fast and it was difficult to keep the Owl in sight. He had been quite lost to view for a minute or more when it occurred to me that he might be attracted by a Mouse-like squeaking. This had been given only twice when he suddenly emerged from the gloom and flew straight towards me on a level with my head as I sat in the boat, coming within twelve feet and then sheering off to be quickly swallowed up by darkness. Again I squeaked and once more he came, this time so swiftly and so near (certainly within a couple of yards) that I almost feared that he would strike me in the face. He was

seen no more after that, but we thought he might be again bullying a Heron when, half an hour later, one of these birds was heard squalling vociferously in the marsh.

1897, SEPTEMBER 6.— The marsh at Moose Point was enshrouded in dusky twilight this evening when a Short-eared Owl appeared there on wing, sharply silhouetted for a moment against a cloudless space low down in the western sky and still radiant with rosy afterglow. Flying in the usual devious, leisurely manner, he had crossed a creek some sixty yards away when I gave a few Mouse-like squeaks. Noticing these instantly and locating them with perfect accuracy the bird wheeled and came straight for our boat to hover directly over it at a height no greater than eight or ten feet, gazing down into it, and at us, intently. After doing so for three or four seconds he started off, but another squeak or two brought him back at once. All this was repeated a dozen times or more. When he was poised close above our heads we sometimes talked, laughed, and even moved about, without frightening him away. He seemed assured that a Mouse must be in hiding somewhere in the boat and determined to have it at whatever risk, being probably very hungry. Had one shown itself there and then I do not doubt he might have pounced on it regardless of our presence which, indeed, gave him not the least apparent concern. His hearing was so keen that my faintest squeaks attracted his attention at more than gunshot distance. He uttered no vocal cry and his wings produced no audible sound, even when beaten within a few feet of our ears. As he passed and repassed in the ever-deepening gloom, alternately flapping and gliding, rarely keeping a straight course for more than a few yards, frequently inclining slightly to right or left or up or down and occasionally making an abrupter turn, his flight constantly reminded me of that of a moth. Once he alighted on a low stub within ten paces of the boat and remained there for a minute or two, perching bolt upright and quite motionless. We finally left him to pursue his nocturnal avocations undisturbed, not caring to harm a bird which had proved so very confiding and entertaining.

1897, SEPTEMBER 11.— Not long after sunset a Short-eared Owl appeared over flooded marshes near the Outlet at a height of fully *one thousand feet.* He looked no bigger than a Nighthawk and acted as if bewildered, flying very slowly, at first in a great circle, afterwards in wavy lines which tended southward over the Lake where he finally faded out of sight in the far distance. Because of the final direction thus taken, and of the unusual altitude at which the bird's flight was performed, I have little doubt that he was migrating at the time.

Being especially given to frequenting marshes also much frequented by gunners seeking Snipe or Ducks, the Short-eared Owl is not infrequently shot at by these men. They should everywhere be persuaded to let it alone, for of all Owls it is one of the most harmless and attractive.

Strix varia varia Barton.

Barred Owl. Hoot Owl.

Common permanent resident.

Barred Owls inhabit the Umbagog Region at every season in numbers varying comparatively little from month to month or from year to year. They are called Hoot Owls by most of the native guides and hunters to whom the Great Horned Owl is known as the Cat Owl. Although found almost everywhere throughout the forest, they prefer lowland to upland woods and are especially fond of haunting lake or river shores heavily timbered with intermingling evergreen and deciduous trees, the outermost ranks of which border on placid water or stretches of grass-grown marsh. In all such places they usually outnumber Owls of every other kind, particularly about the Lake where there is scarce a cove of any size that does not regularly harbour at least a pair of them. Once mated they apparently remain so at all seasons for the remainder of their lives, roosting not far apart by day, saluting each other vociferously at the approach of evening, seldom separating widely or for long, while engaged in nocturnal hunting excursions, mostly confined to the neighbourhood of their diurnal haunts, for few other large Raptores of any kind are so little addicted to extended rovings. Such, at least, are my impressions, based on observations of Barred Owls in spring, summer, and autumn, when it is often possible to trace their movements rather accurately during a whole evening, if not also throughout most of the following night, by merely listening attentively to their sonorous voices. These may carry to the distance of more than a mile if the air be calm or, under such conditions, wake the echoes gloriously in coves and along river-reaches backed by rising ground, or by close ranks of dry, resonant stubs. Normal hooting is commonly heard oftenest and most continuously for half an hour or so immediately after sunset and before sunrise. It may be kept up at intervals all night long in full moonlight, or indulged in sparingly by day, especially in lowering weather, but darkly-clouded nights usually silence all the Owls and they are unlikely to be vociferous when there is only starlight. These rules are subject, however, to not infrequent exceptions which, for the most part, seem unaccountable. Thus a delightfully serene and windless moonlight night will sometimes pass undisturbed by the voice of a single Owl, whereas during the whole of another immediately preceding or following it, and apparently identical in character, every bird

about the Lake may seem to be making as much noise as possible. On other occasions, if but rarely, the Owls will be clamorous throughout densely-cloudy or even stormy nights, while every now and then they may preserve unbroken silence for a week or more at a time, whatever the weather conditions. Altogether their vocal moods seem to be governed, as I have implied, by influences too obscure to admit of reasonable explanation.

Almost all the vocal sounds made by the Barred Owl are sufficiently characteristic to be readily distinguished from those of every other representative of the family found in New England. The most frequent utterance is a deep-throated, somewhat hoarse and very resonant *who, ho,-ho,-hò, who, ho, ho-hòo-ah,* common to both sexes and varying but little in form, expression, or intonation with different birds or with the same individual at different times, excepting when, as often happens, only the terminal *ho-hòo-ah* is given or this still further abbreviated to *hòo-ah,* (uttered with startling emphasis), or perhaps to a monosyllabic *whoo.* A rather marked variant of the ordinary unabridged hooting, heard at Pine Point on the evening of May 26, 1896, and noted then and there as *hoo-hoo-hoo, hoo-hoo, hoo-hoò,* was, however, apparently characteristic of its author, for he employed it regularly and uttered nothing else.

Differing widely for the most part from all the utterances thus far mentioned, although including one of them, are certain nocturnal serenades to which the Barred Owl is much given in spring time, but rarely if ever undertakes at any other season. They consist of loud and prolonged outbursts of cackling, laughing, and whooping sounds delivered very rapidly and interspersed, as well as ending, with the familiar *ho-hòo-ah.* Although probably inspired chiefly by sexual ardour or rivalry, they seem much more suggestive of loquacious and boisterous mirth. Both sexes take part in them and sometimes as many as three or four birds will be gabbling and laughing at once or in unbroken succession, making the woods ring with their almost deafening clamor, perhaps for minutes at a time.

The only remaining utterance of the Barred Owl of which I have definite personal knowledge is so remarkable and so very rarely used, at least in regions familiarly known to me, that the following entries in my journal relating to it seem worth giving in full:—

1896, SEPTEMBER 8.— Those of us who slept under canvas last night at the camp on Pine Point were suddenly awakened, about midnight, by outrageous squalling, snarling, and growling, coming from somewhere close to the tents and exactly like that of tom-cats engaged in nocturnal strife, but much louder.

This outcry was exceedingly startling because of its nearness, and of the perfect stillness of the night.

It was immediately followed, without the slightest intervening pause and apparently from the same place, by normal hooting of a Barred Owl. My impression was that all the sounds came from the same spot and from one and the same bird, in which case their author must have been an Owl belonging to the species just named. Will Sargent (the guide) thought, however, that two birds took part in them and that all except the hooting ones were made by the so-called "Screech Owl" of the region which, for reasons already explained (p. 368), I believe to be the Long-eared Owl. The caterwauling was very different from any utterance that I have ever traced to the Long-eared Owl and equally unlike the medley of laughing, cackling, and hooting cries which the Barred Owl often gives in early spring, but closely similar to an outburst of cat-like yelling which, several years ago, suddenly disturbed not only the serenity of a calm autumn evening, but also the peace of mind of some sportsmen whom I happened to be visiting at the time at their camp on Moll's Rock. For these men insisted on attributing the cries to a Cougar, said to be then roaming the forests about the Lake, although the veteran guide, Luman Sargent, asserted positively, after listening to them attentively for a moment, that they came from a Barred Owl, as no doubt was the case, although they were unaccompanied by hooting on that occasion.

1897, September 11.— Just as we were about to leave a shooting stand in the Outlet marshes this evening a prolonged and cat-like scream rang out from among the stubs near Moll's Carry. Although coming from a distance of nearly half a mile, this outcry was so loud, so piercing and so expressive of ferocity as to be very thrilling. It ended, however, with a hoarse *hòo-ah* which could issue from no throat other than that of a Barred Owl, thus once more confirming my impression as to the authorship of the "caterwauling." Why I have never heard it in the South where Barred Owls are so very numerous, or more than thrice at Lake Umbagog where they are not uncommon, is difficult to understand. To-night it was much shorter and less varied than when given at Pine Point last year, but equally like the squalling of an angry cat only many times louder and without any growling termination which, however, may have accompanied it, yet failed to reach our ears because of the distance. That most of it might have been heard more than a mile away I do not doubt.

Unlike most of the larger birds which inhabit or visit the Umbagog Region, the Barred Owl has suffered comparatively little there as yet from human persecution. Such immunity is due largely to its habit of remaining inert and mostly silent through the day, well hidden amongst dense foliage, commonly that of pine or hemlock, and also to the care it takes to keep beyond reach of sportsmen's guns when venturing by night into the neighbourhood of their camps or hunting grounds. Even should its diurnal retreat be discovered and betrayed by clamorous Crows, as not infrequently happens, it almost invariably

manages to flit off unobserved before the hunter comes dangerously near. Thanks to their habitual observance of all these wise precautions the Barred Owls found about Lake Umbagog are much oftener heard than seen and almost never shot, although they occasionally blunder into steel traps set for something else. Nor are they always safe from murderous attack on the part of other nocturnal prowlers, feathered or furred and superior in size or strength, as the following extract from my journal will seem to show:—

1894, October 9.— On the banks of the Androscoggin River, only a few rods below where it leaves the Lake and hence in open marshes far removed from any trees, Will Sargent and I came to-day upon plumage remains of a Barred Owl which some other predatory creature had killed and eaten not long before. Many body-feathers of the Owl, chiefly from its back and sides were scattered about close to the edge of the water. They thickly plastered the top of a large stump some twenty yards away, beneath which were numerous others, besides all the wing and tail feathers; but neither here nor elsewhere could we find any bones, talons, or fragments of flesh. Quite evidently the unfortunate bird had been seized on the ground near the water, or while flying over it, and then taken to the stump to be plucked and devoured. Although much of the intervening ground was bare and muddy it showed no tracks save those of Snipe and Muskrats. Hence we inferred that the Barred Owl must have been slain and carried to the stump by some more powerful bird of prey, probably a Great Horned Owl.

If there be ever migratory flights of Barred Owls from, into, or through the Umbagog Region I have failed to obtain evidence of the fact. Yet obvious and sometimes rather considerable remnants of such a kind occur irregularly in Massachusetts. When the birds appear commonly in the neighbourhood of Boston in autumn or winter, presumably migrating from farther north, most of them are exceedingly tame and some so very heedless or confiding as to be killed or disabled by boys armed only with stones or sticks. Hence they must come from remote forests other than those about Lake Umbagog, for there the Barred Owl is, as I have said, much too wary and sophisticated to suffer close approach even in broad daylight.

Cryptoglaux funerea richardsoni (Bonaparte).

Richardson's Owl.

Several farmers living near the southern end of Lake Umbagog have assured me that an unfamiliar little Owl resembling the Saw-whet, but "a size or two larger," sometimes enters their barns in midwinter

and occasionally remains in them for weeks at a time when the cold is severe and the ground deeply buried in snow. As the Saw-whet is familiarly known to everyone about the Lake, the barn-frequenting bird is doubtless something different and probably Richardson's Owl. Unfortunately I possess no evidence better than this of the occurrence of the latter species in the Umbagog Region. That it must appear there now and then seems almost beyond question, in view of the fact that it has been reported from so many localities elsewhere in northern New England.

Cryptoglaux acadica acadica (Gmelin).

Acadian Owl. Saw-whet Owl. Saw-whet.

Common permanent resident.

Throughout the Umbagog Region the Acadian Owl is probably more numerously represented at every season than any other member of its tribe, but being a forest-haunting bird, of insignificant size and strictly nocturnal habits, it attracts comparatively little notice on the part of anyone. Few sportsmen or ornithologists ever set eyes on it and it is not seen often by professional backwoodsmen, although familiarly known to all of them as the Saw-whet, because of the peculiar notes which it utters so frequently in early spring. These, however, are sometimes attributed to the Bob-cat, (Lynx), to the Rabbit, (Varying Hare), or even to the little Chipmunk, by hunters who ought to know better, but who, nevertheless, persist in their amusingly erroneous contentions, supporting them by all manner of impossible evidence. The more intelligent guides are correctly informed, of course, respecting the authorship of the saw-filing sounds. Alva Coolidge has closely watched an Acadian Owl engaged in making them. According to his testimony they may be heard everywhere in the forest in February and March; oftenest just before daybreak, not infrequently throughout the night, occasionally in the daytime during cloudy weather when they are thought to presage rain. The saw-filing season reaches its height in March and usually ends before the first of May, although it may continue intermittently through that month and even into the first week of June. After that the Acadian Owl commonly remains silent until the following autumn, and then abstains from uttering anything more than a staccato whistle which one may hear occasionally at nightfall in evergreen woods about the shores of the Lake. The bird ranges thence in every direction as far, no doubt, as unbroken

forests extend, being very generally and evenly distributed for the most part, although perhaps found oftener in swampy than in well-drained woodland, and certainly more inclined to frequent coniferous than deciduous growths of trees. In all wilderness places one's chances of seeing much of the Acadian Owl are slight indeed, especially during the daytime when the inconspicuous little bird, perching silent and motionless amid dense foliage, is quite as certain as the "needle in a haystack" to elude the keenest and best-trained human eyes unless, perchance, it has already attracted the notice of still sharper sight employed by Chickadees, Kinglets, Warblers, or other woodland birds who, by flitting close about it with excited chirping, may unwittingly betray its place of concealment to those who know how to interpret such behaviour.

Nor can one often get more than a fleeting glimpse of the Saw-whet at evening in localities which it especially frequents; for, unlike most other Owls, it seldom moves about freely until twilight has well-nigh ceased to linger amid the trees, and still more rarely ventures to show itself in openings or along the shores of lake or river, being indeed, of all our birds one of the most strictly confined to the forest at every hour and season.

Although such is not the belief of local guides and hunters whose opinion is entitled to consideration, I cannot help suspecting that many of the Acadian Owls which inhabit the Umbagog Region at other seasons must spend their winter farther south. For those wintering in eastern Massachusetts sometimes perish rather numerously of cold or starvation when the temperature falls only to zero and the ground is covered by no more than a foot of snow. How, then, can birds of the same species maintain existence in Umbagog forests where the thermometer frequently registers twenty or more degrees below zero, and the snow is seldom less than three feet deep in February and March? Despite the extreme severity and regular annual recurrence of these conditions they may, nevertheless, occasion less hardship to the Saw-whet Owl than do milder ones which obtain farther southward. Indeed when roaming through evergreen woods near Bethel, Maine, in midwinter, I have repeatedly noticed that the dense, imbricated foliage of their vigorous, low-branching spruces and balsams serves not only to obstruct and otherwise neutralize the force of violent winds, but also to intercept so much of the heaviest snowfalls that the ground beneath the trees often remains almost or quite bare, although perhaps walled in on every side by waist-deep drifts. These sheltered spots are especially attractive to Wood Mice of several

kinds, whose meandering foot-prints delicately embroider the surface of whatever finely-powdered snow may have sifted down through the foliage above. As the Saw-whet preys chiefly, if not almost exclusively, on Mice, and is apparently unable to obtain them only when and where they remain altogether beneath the snow, such favourable opportunities for hunting them must appeal to him strongly, and may well enable him to secure as many as he desires, in which case he is not likely to suffer from extreme cold, for much less hardy birds withstand it easily as long as they continue to be generously fed.

My personal experience with Acadian Owls in Umbagog forests has not been very extensive. Most of it, indeed, is referred to in the following passages taken from my journal or note-books. Although some of the statements they include may duplicate, or perhaps conflict with others written at different times, it has seemed best to reproduce all the matter in nearly its original form rather than to condense and coördinate it. For first records of fresh impressions are commonly more interesting and also valuable, at least in the eyes of naturalists, than anything that can be produced by compiling them, however much they may repeat or even contradict one another.

1879, June 16.— Early this afternoon I was forcing my way through a deep arbor vitae swamp bordering on Cambridge River not far above Abbott's Mill when a beautiful little Acadian Owl in adult plumage started from a drooping branch within three feet of my head and flew to another about ten paces off. Being unprovided with a gun I tried to steal near enough to knock him down with a pole, but this attempt proved unavailing. At the end of a second short flight the bird alighted high up in a tree, and before I got beneath it unfolded his wings again and sped quickly out of sight, flying quite noiselessly and otherwise after the manner of most Owls. He alighted very abruptly and displayed unusual animation when perched. It was evident that he saw me distinctly and watched my every movement intently. I have never before known a Saw-whet to be so wary, active, and restless in broad daylight. Such exceptional behaviour may perhaps be sufficiently accounted for by the fact that, at the time, rain was falling ceaselessly from a darkly-clouded sky. I fail to understand, however, why, as happened repeatedly, Warblers and other small woodland birds approached this Owl closely without making any fuss or even appearing to notice him.

1880, May 18.— As Alva Coolidge and I were looking for Woodpeckers' nests among the stubs in the flooded marshes near the mouth of the Cambridge this forenoon, he drew my attention to the saw-filing notes of an Acadian Owl, coming from somewhere far off in the forest and now heard by me for the first time. They were given at infrequent intervals and always in sets of threes thus: — *skreigh-àw, skreigh-àw, skreigh-àw.* Their general resemblance to the sounds produced by filing a large mill-saw was very close, I thought.

1896, May 27.— For the past three nights an Acadian Owl has been filing near Moll's Rock, according to the testimony of some river-drivers encamped there, and another was similarly vocal last night behind our camp on Pine Point, as I am assured by one of my men. We all heard the Moll's Rock bird from the Pine Point camp to-night, although the intervening space of open lake is said to be one and one half miles across. From this distance his voice came distinctly, but rather faintly, to our ears, the air, of course, being perfectly calm. He began calling about half-past nine o'clock and kept it up without the slightest cessation for two or three minutes, uttering about four notes every five seconds and probably not less than one hundred in unbroken succession. They somewhat resembled those, still fresh in my recollection, which the Pygmy Owl (Glaucidium sp.) of Trinidad gives so freely by day as well as night, but he does not call so long at any one time and his utterances are more pleasing. Those of the Saw-whet impressed me to-night as very like the distant clanking or clashing of pieces of metal striking one another rather forcibly. I am now conscious of having listened to them repeatedly during the past few evenings mistaking them, however, for the rhythmic grating sounds which often emanate from my sailing canoe, riding at anchor near our camp, when pulsing wavelets cause her brass drop-rudder to shift up and down, or to and fro, within its iron casing.

1896, May 28.— Shortly before eleven o'clock this forenoon Watrous and I were passing Moll's Rock in a boat when the Acadian Owl began calling somewhere among the venerable hemlocks at the rear of the equally time-honoured camping ground. He kept it up for a little more than a minute, regularly uttering four apparently monosyllabic notes every five seconds. Heard now at a distance probably not above two hundred yards they sounded scarce louder than when coming from the same place last night across an expanse of water upwards of a mile in breadth. At this closer range their metallic quality was so pronounced and their tone so ringing that they reminded me of the anvil-like *tang-tang-tang-ing* with which a species of Bell Bird makes the tropical forests of Trinidad resound. To this, indeed, they bore no slight resemblance, although much less resonant and far-reaching. Nor did they fail to suggest saw-filing, also. It may well be doubted, however, if any human sharpener of saws could rasp their teeth so rapidly and continuously with a file as did this little Owl the air, not to mention my nerves, with his tireless and insistent voice. It bore interesting testimony on this occasion to the possible correctness of a popular belief that the Acadian Owl can foretell the near approach of foul weather and is accustomed to proclaim it by diurnal outcry. For although the surface of the Lake remained glassy calm, and dazzlingly bright with reflected sunlight during the whole forenoon, it became ruffled with wind and obscured by overhanging clouds in the afternoon, while a heavy northeast rain-storm began shortly after sunset and continued throughout the following night.

1896, May 31.— At half-past eight this evening the Acadian Owl at Moll's Rock began whetting his saw. We heard him distinctly at Pine Point, across

more than a mile of intervening lake, the air being windless, of course. With unfailing regularity he uttered twelve *tangs* every five seconds, as I ascertained by timing him with a stop-watch.

1896, June 1.— The Moll's Rock bird was again heard at 8.30 P.M. when he gave no more than eight or ten calls.

1896, June 2.— About a half an hour after sunset a Saw-whet became vocal in evergreen forest covering a swampy stretch of land lying between Leonard's Pond and the Magalloway River. I could get no nearer him than two or three hundred yards. He uttered from eight to ten monosyllabic calls every five seconds for a considerable length of time. They lacked all obvious trace of the usual metallic ring or *tang* and, indeed, seemed not very dissimilar to those of the Pickering's Hylas, peeping by hundreds about the shores of the Pond. But inasmuch as the voice of the Owl was in nowise obscured by the prodigious din the little Batrachians were making, it must have been more differently attuned than was apparently the case.

1896, June 4.— I was sitting in front of the camp at Pine Point about nine o'clock to-night when an Acadian Owl began his serenade scarce fifty yards away among some second-growth canoe birches. Here he was heard to uncommon advantage, not only because of his nearness, but also because the calm night air remained undisturbed by sounds other than those he produced. *Whurdle-whurdle-whurdle* he called long and uninterruptedly, in a whistling voice obviously quite devoid of ringing or even metallic quality, and very like that of the Glaucidium of Trinidad, but somewhat more gutteral. All his utterances were rapidly delivered, evenly spaced, and precisely alike. They altogether failed to suggest the sound of saw-filing.

1896, June 5.—The Moll's Rock bird was *tanging* to-night at half-past eleven.

1898, September 20.— Our tents were pitched this evening in a dense thicket of young balsams and other evergreens not far back from the water on the south shore of Upper Metalluc Pond. Sometime after supper, and half an hour or more after twilight had ceased to linger, something flitted past us within the extreme outer confines of the space illumined by our camp-fire. It looked like a rather large bird, but just beyond where it had disappeared I came suddenly face to face, a few moments later, with an Acadian Owl. He was perched on a drooping spray of arbor vitae no higher than my head and scarce five feet from it, balancing himself gracefully with half-opened wings. Such a charmingly elf-like and alert little creature differing so widely in appearance and behaviour from the stiffly grotesque and stupid-seeming birds which we occasionally run across by day in Massachusetts woods! Unhappily I had only a momentary view of him before he took to wing again and, brushing close past me, flew back towards camp, apparently alighting nearly over the tents, although he could not be found there or elsewhere again. The night was dark and windy.

That the love-notes of the Acadian Owl may impress one differently on different occasions will appear from what has just been said con-

cerning them. Obviously they must vary considerably with different birds, or with the same bird at different times, or must seem to do so because of varying conditions of distance, environment, etc. Slight, at best, their resemblance to the sound of saw-filing ceases to be appreciable when one is very near the Owl or else is characteristic of some birds, but not of others, or possibly common to all at certain hours and seasons only. Be that as it may, the utterances are always too hurried and monotonous to be very pleasing, or even interesting. Such, at least, is the impression they have invariably made on me, albeit heard so often under conditions and amid surroundings especially favourable for imbuing everything of the kind with romantic attractiveness. Thus while I cannot remember to have ever listened to the impressive hooting of a Great Horned or a Barred Owl without desiring to do so longer, still the spring calling of the Saw-whet has frequently wearied me within less than a minute. Concerning his autumnal calls my field-notes furnish the following testimony: —

1890, October 2.— As Warren Noyes and I were spending an autumn evening together on Moll's Rock about a year ago a double whistle, soft and low in tone, issued from the forest just behind the tents. He claimed to recognize it as one of the utterances of the Canada Lynx, but that such could be its authorship seemed most improbable to me. It was heard again to-night on a neighbouring wooded shore where several of us were sitting around a camp-fire. I now suspect that it must proceed from an Owl of some kind, perhaps a Saw-whet.

1893, September 26.— About nine o'clock this evening a bird which I took to be an Acadian Owl began calling in dense spruce woods at the rear of our camp on Pine Point. He uttered a single staccato whistle, not unlike the familiar *pheu* of Wilson's Thrush, but decidedly louder and clearer. This was repeated at intervals of half a minute or less for sometime. By imitating it, which was not difficult, we enticed its author almost within the circle of light cast by our blazing fire, but he soon retired into the depths of the forest again.

1893, October 5.— The supposed Saw-whet revisited Pine Point at nine o'clock to-night when he circled close about the camp, at first giving the same whistling calls heard rather more than a week ago, then replacing them by a gasping and decidedly uncanny *ah-h-h* something like that of a Barred Owl, but feebler and less gutteral.

1893, November.— While staying on at Pine Point during this month, after I had returned to Cambridge, my guide, Will Sargent, frequently heard the Owl whistling and finally shot it in the very act, thus settling its identity beyond possibility of further doubt. As he and I had both anticipated it proved to be an Acadian Owl.

1904, October 28.— At sunset this evening I heard an Acadian Owl call thrice in swampy woodland belonging to Dr. Gehring, at Bethel, Maine.

Each time it gave in quick succession four whistles: — *hew-hew-hew-hew.* Dr. Gehring tells me they have been uttered at least thrice in the middle of the night during the past month, among ornamental evergreens on the lawn close to his house.

1904, November 13.— About nine o'clock this forenoon I heard the four whistles of the Saw-whet given once in the woods where he was noted on October 28, last. The sky was clouded over and the weather mild when he called to-day.

Otus asio asio (Linné).

Screech Owl.

Towards the close of the period when Poplar Tavern in Newry, Maine, was kept as a public hostelry by Charles Bartlett, his wife became interested in birds and formed a small collection of such as could be obtained in the immediate neighbourhood, skinning and mounting them herself. Among other specimens which she showed me in August, 1887, was a Screech Owl in the grey phase of plumage, which, she assured me, had been shot on the wooded hillside at the rear of the house during the preceding winter (1886–1887), but precisely when she was unable to remember. Unfortunately, the record fails to establish the occurrence of the species in our Umbagog Region proper, for the locality where the bird was taken is several miles to the southward of Grafton Notch. If the true Screech Owl ever strays to the northward of the Notch, into the boundless forests which cover almost the entire watershed of Lake Umbagog, it remains unknown to native guides and hunters there, although, as has been said, they are more or less familiar with a much larger bird to which they apply the same name and which is probably the Long-eared Owl.

Bubo virginianus virginianus (Gmelin).

Great Horned Owl.

Common permanent resident.

The Great Horned Owl inhabits the Umbagog Region throughout the year. Probably he is less numerously and widely distributed than the Saw-whet, and perhaps no more so than the Barred Owl, although apparently the commonest and most ubiquitous member of his tribe, because so accustomed at every season, except in midsummer, to send his sonorous voice far and wide over hill-top, river, and lake. One

hears him oftenest between sunset and dark or about daybreak, but if the moon be shining brightly in a cloudless sky, he may hoot all night long at short, regular intervals and perhaps be regularly answered by others of his kind. When three or four birds thus engaged are scattered widely and not infrequently shifting from place to place, they may be thought to number twice or thrice as many. For their impressive utterances not only come from varying distances and directions, but also echo and reverberate through the forest until every part of it within ear-shot seems to be contributing more or less of the intermittent, deep-toned sounds. Such a serenade is worth going far to hear, especially amid surroundings such as those afforded by certain of the reaches of Lake Umbagog when they, with the mountain crests that tower about them on every hand, are bathed in the silvery moonlight of a calm autumnal night.

Although so often heard, the Great Horned Owl is comparatively seldom seen. At night he systematically shuns shores or marshes where gunners lie in wait for flights of water-fowl, and I have never once known him to show himself within the circle of light radiating from a camp-fire. If followed by moonlight he is likely to prove as elusive as a will-o'-the-wisp, flitting hither and thither enshrouded in gloomy shade cast by forest trees, hooting every now and then as if to stimulate further pursuit, but invariably keeping beyond reach of the most stealthy hunter's gun, however carefully he may be stalked, and perhaps finally winging his way to some distant place whence he may not return for hours, if at all that night. Nor has one a much better chance of stealing upon him by day when he is perching inert and silent, yet ever watchful, in some dense-foliaged pine or hemlock well back in the forest, where his presence may be betrayed by the significant behaviour of clamorous Crows who have discovered his retreat and are congregated about it by dozens if not scores. They hate and fear him exceedingly, not without reason, for he often preys on them during hours of darkness. In the daytime, however, they do not hesitate to mob him rather boldly, vying with one another in venturesome and oft-repeated lunges from above at his head and back, although prudently refraining from getting within reach of his formidable talons. One might suppose that these hostile demonstrations, and the ceaseless din of cawing that accompanies them would prove sufficiently annoying and distracting to absorb the Owl's entire attention for the time, but they seem to disturb him comparatively little, and during their continuance he is scarce more likely than when not thus harrassed to disregard human approach. Once apprized of it he

will promptly spread his broad wings and not refold them until after flying half a mile or more through, or just above, the tree-tops, hotly pursued by all the shouting Crows. Being thus habitually wary and resourceful by day as well as by night, and safeguarded not only by exceptionally keen hearing, but also by eyesight which, despite popular belief to the contrary, serves him quite as well in broad daylight as at other times, he rarely falls a victim to any hunter's gun. Like most birds of prey, however, he is unsuspicious of steel traps, even when fully exposed to view, and hence blunders into them every now and then. Much oftener he shows disregard of them with obvious profit to himself, if aggravating loss to men who set them, by devouring small mammals held fast in their cruel jaws. This is most likely to happen when and where they are employed to catch Muskrats, for the Cat Owl, as he is invariably called by all the local hunters, is exceeding fond of the tender, albeit strong-scented, flesh of these amphibious mammals. No doubt it is largely for the purpose of preying on them in traps or otherwise, that he haunts lake and river shores so constantly in summer and autumn, although he may there and then content himself occasionally with such humble fare as that afforded by large insects, especially beetles, with which his stomach is sometimes well filled. In winter and early spring he seems more inclined to dwell well back in the forest where, it is said, he subsists chiefly on Varying Hares and Ruffed Grouse.

Despite his dignified bearing and handsome plumage, the Great Horned Owl does not make a pleasing addition to the aviary, for of all New England birds he is perhaps the most irredeemably morose and untamable. Even a Rattlesnake is scarce less amenable to kindly human advances, but whereas it may resent them with active and perhaps fatal aggression, the Owl will be no more than coldly unresponsive provided he is not touched. Much of what is doubtless his true nature may be read in his staring, yellow-girdled eyes. Soulless at all times, they express either vacuous or sullen indifference when he is resting undisturbed; malignant resentment, should he be annoyed or threatened; bloodthirsty lust, when his gaze is fixed on coveted prey. Yet he is not addicted to quarrelling with other large birds, even when closely confined with them, or to killing beyond his need for food. Such forbearance might redound more to his credit were it less obviously the outcome of mere selfish distaste for needless exertion of every kind. If he be ever moved to affection for any living creature, except, perhaps, for his mate, with whom he is accustomed to pair for life, the existence of such emotion is certainly not

betrayed by any outward sign. One might expect that a bird possessing a nature so unmistakably austere and repellent would have a harsh and discordant voice. That of the Cat Owl does not lack such qualities when he is merely calling, but his hooting is always pleasingly impressive, without trace of roughness or of savagery to mar its perfect rhythm and purity of tone, while there are occasions when it falls on the ear as gently and as soothingly as the cooing of a Dove, to which, indeed, it bears at times a rather close resemblance. I have never known this to happen, however, when the bird was more than fifty or sixty yards away. Oddly enough his voice seems to become softer and more cooing the nearer he approaches one within such limits, and beyond them to increase very materially in volume and resonance up to a distance of two or three hundred yards. Farther and still farther off it becomes apparently less and less loud without, however, much less of resonance. Under favourable conditions it may be heard distinctly a mile and a half or perhaps even two miles away. That any sound carrying thus far can impress one as being agreeably subdued when its author is perched in a tree directly overhead is difficult to believe, yet such has been my experience on several occasions. It is possible, of course, that the Owl may deliberately restrain, or otherwise modulate his voice at these times, but much more probable, in my opinion, that the sound continues essentially the same, and that its varying effects on the human ear are due primarily, if not solely, to some obscure principle of acoustics. Such, without doubt, must be the case with the drumming of the Ruffed Grouse which, as I have already stated, has a similar tendency to decrease in apparent loudness and intensity as one draws very near the performing bird, until at distances not exceeding four or five yards it may almost cease to be audible.

Great Horned Owls seldom hoot freely at hours when the sun is well above the horizon and shining brightly in a cloudless sky. Indeed I have known it happen only thrice during my entire field-experience at Lake Umbagog. On each of these occasions two birds continued to answer one another at regular intervals for half an hour or more, in the first instance near the Lake House, shortly after 5 P.M., on June 5, 1876; in the second at Moll's Rock, about the same time of day on September 26, 1893; in the third at Curtis Meadows, between 3.30 and 4 P.M., on September 14, 1900. Nocturnal hooting, also, is oftenest performed by two birds not far apart, although a single bird may, and not unfrequently will, indulge in it persistently, apparently quite out of ear-shot of all other of his kind. When two are engaged

their utterances always differ in form and are never interchanged, that of the one invariably consisting of no more than five notes, whereas that of the other has normally eight, although occasionally only six. Hence we may assume that the two birds taking part in such duets are of opposite sexes and probably a mated pair. As I have known what were apparently the *same* two to be thus vocal almost every month of the year, for many years in succession, it may further be assumed that Great Horned Owls are accustomed to pair for life. Because of the fact that the shorter form of utterance is almost always employed by solitary birds, I am inclined to believe that it is peculiar to the male of the species. It is usually given first in dual performances, although such order is sometimes reversed. In either case the second utterance is likely to follow the first rather closely and perhaps almost without any intervening pause; after which both birds commonly remain silent for at least eight or ten seconds before hooting again. The commoner and more characteristic utterances of both adults and young are mentioned in the following passages from field-notes written at Lake Umbagog:—

1880, September 8.— As twilight was falling this evening a big Owl glided close past the front porch of the Lake House where Will Peaslee (a local hunter) and I were sitting, and alighted on a spruce in the little garden of the Umbagog House, perhaps thirty yards away. He was quickly followed by another of similar size and appearance who swooped at him aggressively and drove him from his perch. After this each alternately took the part of assailant and assailed in a succession of what appeared to be merely playful, albeit rather vigorous, onslaughts. Thus engaged they quickly passed through scattered trees across semiopen pasture land, into unbroken forest beyond. Both birds invariably alighted on the topmost sprays of tall spruces or balsams and uttered, at short intervals, a nasal, snarling cry wholly unfamiliar to me. I saw them only dimly, but Peaslee identified them very positively as young Cat Owls which, he assures me, have a habit of thus coming about houses in late August and early September, although unaccustomed to do so at other seasons.

1882, October 13.— It was interesting to be kept awake for half an hour to-night in my bedroom at the Lake House by two Great Horned Owls, no doubt a mated pair, hooting in the forest at the rear of the house. The utterance of one bird was invariably *ho, ho-hò-ho, hò-ho-ho, hoo,* that of the other *whò, who-whò, whòo, whòo.* The voice of the former bird was hard and resonant, reminding me of the sound of a horn, whereas that of the latter was softer and suggestive of the cooing of a Dove.

1886, October 23.— As twilight was deepening this evening an Owl began uttering a snarling, cat-like cry not far from the Lake House. Presently I saw him perched on a stub in the marshes across the River, a big bird, evidently a

Bubo. He was calling there again at 11 P.M., and also just before daybreak the following morning.

1889, SEPTEMBER–OCTOBER.— The only Cat Owls noted by me about the Lake this autumn were two, presumably a mated pair, which frequented swampy woods near the Outlet and within hearing of the spot where we were encamped. Throughout the months of September and October they seldom hooted oftener than during two nights of each week, beginning about fifteen minutes after sunset and ceasing half or three quarters of an hour later, unless the moon was shining brightly, when they might be heard at frequent intervals all night long. We did not once hear them during rainy or densely-cloudy nights, or in broad daylight, nor was either bird ever known to utter any sound other than its customary hooting. That invariably characteristic of one was *hòo, hoo-hoo-hòo, hòo-hoo-hoo, hòo;* that of the other *hòo, hoo-hòo, hòo, hòo.* The bird using the latter utterance serenaded us with it rather often at close range toward the end of our stay in camp. As he commonly arrived shortly before daybreak and perched on the top of a tall dead hemlock that stood within twenty yards of the tents, his visits were too disturbing to be altogether welcome. We tried repeatedly to shoot him, but he always escaped by taking flight the very moment any one of us appeared at the opening of a tent. Although both these Owls evidently ranged over a wide extent of country in quest of prey, they seldom hooted much except in the neighbourhood of the Outlet. On windless nights we could hear them at least a mile and a half away.

1894, SEPTEMBER 22.— To-night a Great Horned Owl regularly hooted *hòo, hoo-hòo, hòo.* This form of utterance is new to me.

1896, AUGUST 28.— While coming up the Androscoggin in a canoe this evening we heard an adult Great Horned Owl hooting in the direction of Moll's Rock, and a young one uttering the characteristic monosyllabic scream among stubs near Leonard's Pond. The latter cry was very loud and it carried far. It varied greatly in quality, being at times dry and husky and indeed almost gasping, at others clear and ringing like a full, shrill whistle and not unlike the single *peer* call of the Pine Grosbeak, but much louder.

1896, SEPTEMBER 10.— A Great Horned Owl hooted for an hour or more last night in the ancient hemlocks at the rear of our camp on Pine Point. This evening he began before sunset and was presently answered by another bird, after which the two continued vocal for upwards of half an hour. The utterance of one was always *hòo, hoo-hòo, hoo, hoo;* that of the other *hòo, hoo-hoo-hòo, hòo, hòo.* The latter form was new to me, but doubtless merely a variant of the ordinary eight-syllabled hooting, although invariably used by this particular Owl.

1896, OCTOBER 1.— In the evening twilight, beneath a black and lowering sky, I was gliding down Cambridge River in a sailing canoe wafted by a gentle breeze, when two Cat Owls began calling among some dead trees at the edge of the forest to my right, both uttering the husky cry which is apparently characteristic of young birds. Presently I saw one of them perched conspicuously on a tall stub much resorted to by Ospreys in the daytime. I was paddling

towards it, after taking down the sail, when the *whuf-whuf-whuf* of labouring wings came from close behind me, immediately followed by a choking scream which almost rent my ears, for at that instant, or the next, its author, the other Owl, hitherto unseen, sailed directly over me on set wings, passing literally within six feet of my head. Just as it dropped its feet and legs, evidently with the intention of alighting, or perhaps of striking at some prey, on a marshy shore about thirty yards away, I fired, bringing it down into the water with a broken wing. It proved to be a male in almost fully-matured plumage, but apparently no more than six or eight months old. This experience definitely settles the authorship of the husky cry which at times to-night sounded very wild and piercing, reminding me of the nocturnal calls of migrating Thrushes, although louder and harsher.

1897, September 7.— The sun was sinking behind the high ridge to the westward of Whale's Back Cove when Will Sargent and I concealed ourselves there to lie in wait for Ducks. Shortly afterwards a Great Horned Owl began making the peculiar, husky, Jay-like scream which, as far as I am aware, is heard only in late summer and early autumn, and which the guides say is characteristic of the *young* of this species. At first the cry seemed to come from some distance off in the stub-forest, and was given only at long intervals, but presently the bird came nearer and called more frequently. At length it appeared within twenty rods of us and half a minute later was joined by another, either its mate or, as Will thought, a brother or sister of the same age. Both birds looked unusually small, and probably were no more than five or six months old, although their plumage seemed fully matured and their horns of normal length. Certainly they were strong of wing and evidently in eager quest of prey. Altogether we had them under constant observation for upwards of half an hour during which they worked around us in a half-circle, following the line of stubs and moving from place to place by short flights. They perched not infrequently in the tops of tall dead trees, but oftener on stubby, lateral branches twenty or thirty feet above the ground. Sometimes one would follow the other closely, and alight within a yard or two of it in the same tree, or even on the same branch. When more widely separated and ranging about independently, they kept calling to each other until reunited, opening their mouths *very* wide and lowering their heads just as the monosyllabic cry was uttered. It was the only sound that either of them made within our hearing. Ordinarily they sat very erect and quite motionless, save for the slow, up-and-down bobbing motion of the head common to most Owls. This was repeated every half-minute or less. Occasionally one or the other would crouch on its perch, and direct its gaze downwards as if watching for a Mouse in the marsh beneath. We repeatedly saw them swoop down into it along steep inclines, and heard them strike with a crash among the bushes or dry grass, or with a splash in shallow water, but whether or not they secured any prey we failed to ascertain. Once, to my surprise, one of them left the top of a stub, and mounted nearly straight upwards on rapidly-vibrating wings, for a distance of twenty feet or more, then turned sharply downward to glide

back to its perch. The whole evolution so closely resembled that of a Fly-catcher that neither Will nor I doubted for a moment that the Owl had essayed, if not accomplished, the capture of some flying insect, probably a large beetle, (I have repeatedly found beetles in the stomachs of Great Horned Owls). If so, it must have employed its mouth or bill alone, for its feet were not extended nor even shown. During ordinary, level flight they were often visible and sometimes hung down nearly to the full length of the legs when the Owl started from its perch, but it always drew them up out of sight among its feathers before going many rods. The wings were usually flapped steadily and continuously for the first thirty or forty yards, after which the bird might set them to sail twice or thrice that distance. The husky cry was often given on wing, especially when one of the Owls was approaching a stub on which the other was sitting. Evidently it is used, chiefly if not wholly, as a call-note, and very commonly employed by two or more young birds hunting in company.

1897, SEPTEMBER 11.— The Great Horned Owls haunting the neighbourhood of the Outlet were unusually active and noisy this evening. Shortly after sunset two began hooting in response to one another near the entrance to Leonard's Pond, and were answered by a third on Moose Point. One of the trio, or possibly a fourth bird, passed us within twenty rods, flying low and very swiftly across the marshes, and thence out over the open Lake towards Pine Point, flapping its wings continuously and steadily for the greater part of the way, but occasionally setting them to glide for a few yards. It looked almost as big as an Eagle and its flight was strikingly unlike that of the Short-eared Owls which we occasionally see here in autumn, being straighter and firmer as well as swifter and much more suggestive of momentum. It did not seem to be seeking prey, nor were some feeding Black Ducks, over which it passed while traversing the marsh, apparently in the least disturbed by its appearance.

1897, SEPTEMBER 14.— At Leonard's Pond this evening we saw a big Cat Owl alight on the top of a tall isolated stub where he sat for ten or fifteen minutes, distinctly silhouetted against the afterglow in the west. Every now and then he alternately raised and depressed his horns or bobbed his head up and down. During this period he remained quite silent, although he or another had been hooting farther off not long before.

1898, SEPTEMBER 11.— As we were paddling quietly down a wooded reach of Cambridge River about three o'clock this afternoon, a Great Horned Owl started fully eighty yards in advance of us from an ash tree that overhung the water, and flew well back into the forest where it alighted on a stout branch and sat watching us while we looked at it through our field-glasses. It seemed as alert and wary as any Hawk, although the sun was shining brightly at the time.

Field-study of bird or other animal life owes much of its perennial interest to the frequent surprises that it brings, even to those longest engaged in it, and perhaps where trained observers have been working ceaselessly for half a century or more. Besides yielding rich stores of more or less novel information, it teaches many a wholesome lesson of humility to those overgiven to pride of knowledge, and to its concomi-

tant, dogmatic assertion, often confronting them with evidence that overwhelms long-cherished convictions and constantly reminding them of innumerable things about which little or nothing is definitely known, such, for example, as the average duration of life of some of our most familiar birds. Even in New England one may still encounter ornithological problems presenting grave difficulties and possessing considerable scientific importance, or romantic interest. One such relating to the precise status and affinities of a Warbler, *Helmintho-phila leucobronchialis*, was solved only very recently by Dr. Walter Faxon — after having puzzled ornithologists generally for upwards of forty years. Another which remains unsolved concerns a Rail-like voice heard occasionally in the fresh-water marshes of eastern Massachusetts and thought by some to belong to the Little Black Rail, although no one has as yet seen or otherwise identified its author. Still another that baffled me completely for a time pertained to various nocturnal outcries of an Owl, wholly unfamiliar to my ears when first greeting them in 1893 at Lake Umbagog, although I had then spent upwards of a dozen seasons there. Nor were they any better known to my two veteran guides who, for many a year, had hunted Deer by jack-light throughout the surrounding region, thereby having frequent opportunities in late summer and early autumn of listening to night sounds in the forest. On the occasion just referred to and on others when similar cries were afterwards heard in the same locality, no clue to their precise authorship was obtained. We all felt assured that the bird must belong to a species with which we were unacquainted, at least through the medium of his voice, and I was inclined to suspect that he might be a Great Gray Owl. Although still in some doubt regarding his identity, I now believe that he was nothing more nor less than a Great Horned Owl addicted to utterances, certainly exceptional, and possibly peculiar, to himself. If they were really characteristic of this individual bird alone he must have had a rather wide local range, for Will Sargent afterwards heard them all night at B Meadows, distant upwards of ten miles from Pine Point. Since then I have known equally aberrant, and not altogether dissimilar, outcries to be produced by a Bubo at Concord, Massachusetts. All such marked variations from the typical and commonly very uniform forms of hooting and calling must be rare, however, for of the many birds that I have listened to first and last in their native haunts no more than two or three have ever indulged in them. My experience with these is described in the following passages transcribed from the journal:—

1883, October 7.— Not long after we had all gone to bed to-night, and while two of the men were still talking, the honking Owl began an extraordinary serenade in the birch grove just to the westward of our camp on Pine Point, and apparently within thirty yards of the tents. He kept it up for half an hour or more, during which I listened to him with intense interest. Some of his utterances were loud and startling enough to have waked the soundest slumberer (no one slept during their continuance), and also sufficiently uncanny to make my flesh creep and cold shivers run up and down my spine. This, at least, was true of a resounding yell commonly repeated from four to six times every minute for several minutes in succession. It varied greatly in tone and expression, and also somewhat in form. Sometimes it resembled the nasal *haink* of a Great Blue Heron; oftener it was more nearly like the *ah-onk* of a Canada Goose; occasionally it suggested the snarling outcry of an angry tom-cat. The *haink* was scarce stronger than that of a Heron, but the other two cries were exceedingly loud and doubtless might have been heard a mile or more away. The change from one to another of the more widely differentiated of these utterances was never made abruptly, but always by means of intervening and intergrading variations. Every now and then the bird hooted once, twice, or thrice in a voice so very gentle and Dove-like that it was difficult to believe that he could also be the author of some of the truly fiendish yells that had rent the calm night air only a few moments before. His hooting utterance was commonly *hoo, hoo-hoo-hoo, hoo-hoo, hoo* and hence similar in form to that often used by a Great Horned Owl, but very unlike both that and the hooting of the Barred Owl in general effect, because all its component notes were equally without especial emphasis and delivered very rapidly in the same key and in smooth, even succession, although there was always a slight pause between the first and second and a still briefer one between the sixth and seventh. Occasionally he added an eighth *hoo* differing in no respect from the rest, and either immediately preceding or following the usual series. Once he called simply *ho-ho-ho-ho-ho* in hard, woodeny tones quite unlike the customary cooing ones. He was also apparently the author of a clear, full whistle, very like that used by Saw-whet Owls in autumn, which came repeatedly from a spot near the tents where he had ceased yelling only a few seconds before, and afterwards was similarly given thrice in quick succession in a pine on the Lake shore, to which he had flown. It is possible of course, that on all these occasions a whistling Saw-whet was keeping the hooting and yelling Owl close company. This, however, does not seem to me probable, although had the whistle alone been heard I should have attributed it without question to an Acadian Owl.

1893, October 6.— At dusk this evening, we heard strange utterances coming from an Owl in dense evergreen woods on Pine Point. He honked repeatedly, much like a Goose, but more hoarsely, and occasionally hooted *ho, ho-ho-ho, ho, ho, ho.* All the hooting notes were given in the same key and *with equal emphasis.* Hence their effect was very unlike that of the hooting of either the Great Horned or the Barred Owl, both of which emphasize some of

their notes decidedly more than others. His voice was loud and heavy, suggesting a bird of large size. We thought he might also have been the author of a *quoc-quoc, quoc* cry resembling the *quack* of a Duck, but fuller and deeper, which came from the same direction later in the evening. The guides, Will Sargent and James Bernier, report that when out with a jack-light on the night of October 3 they listened to what was doubtless this same Owl, honking and hooting about a mile from camp in Glaspy Cove. Never having heard anything of the kind before both men are quite as unable as I am to suggest what he may be. We all feel sure that he cannot be either a Great Horned or a Barred Owl.

1896, September 4.— The same mysterious Owl that visited Pine Point in 1893 was heard there again, near the head of our boat-cove, at dusk this evening. First he honked like a Goose four times, next hooted thrice, finally hainked like a Heron several times. After this, silence.

1896, September 11.— As we were eating supper in front of the camp at Pine Point a prolonged and piercingly shrill whistle rang out in the woods in the rear. From that same direction, only a few moments later, came flying a huge Owl whose wings made a sound like that of the soughing of wind through pines. He alighted in a tall tree near at hand, but almost immediately took flight again. Just what he was I cannot say. We thought, but of course could not be sure, that he was the author of the whistle,

1896, September 20.— About eight o'clock to-night, when the moon was just appearing above the tree-tops, our camp at Pine Point was again serenaded by the mysterious Owl. He honked and hooted precisely as before, for upwards of ten minutes, apparently among some large hemlocks growing on a knoll perhaps sixty yards away. When I stole thither along a smooth, clean-swept footpath his outcries ceased, but presently began again afar off to the eastward. He did not once utter the *haink* cry to-night. I am inclined to think that his *honk* is almost if not quite as loud and far-reaching as the *tock* of the Trinidad Bell Bird.

The Concord experience alluded to (p. 392) was with an Owl presumably belonging to a pair of Bubos which, for upwards of twenty years, were to be found at every season in or near dense woods composed chiefly of large white pines and bordering on the river-meadows within half a mile of a camp and of an old farm-house, at one or another of which I was, and still am, accustomed to spend weeks at a time in spring and autumn. In these woods I often started the big birds by day, or listened to their sonorous voices at evening, while in the middle of the night, or just before daybreak they occasionally came close about the camp or farm-house and awakened me by their loud hooting. They were constantly harrassed by mobs of Crows, but suffered comparatively little from human molestation, although every now and then their young were taken from the nest to be reared in captivity by a

farmer's son, and still more rarely one of the parent birds got caught in a steel trap, or shot by some vandal gunner. In the latter event the surviving adult invariably secured another mate without much delay or apparent difficulty. Hence what *seemed* to be the same pair continued to frequent the locality for many a year, although one or the other of its members might occasionally perish and be replaced. Nevertheless, I heard nothing unusual in the way of either hooting or calling until towards the close of the period just referred to, when a bird, almost certainly one of the local pair, but perhaps not long established in such relationship, saluted me on two occasions with rather remarkable outcries of which the journal gives the following account:—

1898, May 4.— Although not as yet sufficiently well-feathered to make even short, horizontal flights, two young Bubos left their nest in the pine woods by the river-meadows at least four days ago, and fluttered or fell to the ground at the foot of the tree where they have since remained. As I was photographing them this afternoon the mother bird flitted about me constantly, keeping well beyond gun-range however, and alighting only in the trees. She was rather noisy, producing a variety of sounds some of which were new to me. Her hooting was normal at first, but presently became aberrant and, if I am not mistaken in my recollection, very like that of the honking Owl that we used to hear occasionally in autumn at Pine Point, Lake Umbagog. My rendering of it written on the spot to-day is *hoo, hoo, hoo-hoo-hoo, hoo-hoo, hoo.* All these notes were in the same key, and uniformly accented, or rather without accent. They were given very rapidly in soft, low, cooing tones. The bird also uttered a hoarse *wah*, sometimes varied to *wah-wah* and very like the deep-throated bark of a big dog. Occasionally she made a squealing or whining outcry not unlike that of a hen Partridge with young.

1903, October 3.— Not long before daybreak this morning I was suddenly awakened by the stentorian voice of an Owl perched, apparently, within thirty or forty feet of my chamber windows in an elm that shades our old farm-house at Concord. All his utterances were more or less unfamiliar to my ears. Especially so was a *wàugh* or *wàugh-ho*, quite unlike the barking *wah* or *wah-wah* that I noted in May, 1898, for although rather guttural in quality it was neither hoarse nor dog-like, but instead a full-voiced, resonant yell or shout, loud and startling enough to have instantly awakened the soundest sleeper, even when heard, as on this occasion, through tightly-closed windows. A strong-lunged man shouting his loudest just outside them could not, I think, have produced a more disturbing noise. The monosyllabic *wàugh* appeared to be identical in form with the first syllable of the *wàugh-ho*, but when so coupled it was given added and, indeed, really extraordinary emphasis, seeming to fairly rend the still night air. Every now and then the bird hooted somewhat after the ordinary manner of Great Horned Owls, but more hurriedly and

in softer, lower tones. On such occasions his notes varied in number, and also more or less in form and emphasis. Having lighted a candle and taken pencil and paper in hand I noted some of these variations immediately after hearing them, as follows: — *to-hoo-hoo-hoo, hoo-hoo-hoo, hoo; to-hoò-hoo-hoò-hoo, hoo; to-hòo-hoo-hòo-hoo;* and *hoo-hoo, hoo-hoo.* Sometimes the yell was given as a prefix to the hooting, thus: — *wàh-ho, to-wòo-hoo, woò-hoo, hoo* or *wàh-ho, tòo-hoo, hoo-hoo.* The lighting of the candle failed to silence the Owl, but when I made a slight noise by partly raising one of the windows he instantly became mute and remained so for several minutes. Excepting during this period and another briefer one he yelled and hooted at short, irregular intervals from 4.15 to 4.35 A.M. When he finally ceased at the latter hour, the eastern sky still showed no signs of daybreak. The night was clear, mild, and windless, with no light other than that given by the stars.

Varied forms of hooting closely similar to those just described were heard a week or two later in the pine woods, (at Concord), by the river-meadows as I was strolling that way at evening. On this second occasion they were unaccompanied by yelling and were regularly answered by a typical utterance, (*hòo, hoo-hòo, hòo, hòo*), of *Bubo virginianus*, proceeding from another bird perched at no great distance from the first and presumably its mate. Hence it seems practically certain that *both* these birds were Great Horned Owls, and almost equally so that the aberrant-voiced one was the same as that which serenaded me at the farm-house on the morning of October 3.

The more aberrant utterances above described, with some of the evidence relating to their known or suspected authorship, may be summarized and restated briefly as follows:—

1. Hooting differing from that ordinarily characteristic of the Great Horned Owl by being much more hurried and less emphatic. It was used exclusively by an unseen bird at Pine Point, Lake Umbagog. At Concord, Massachusetts, a Great Horned Owl, concerned for the safety of her young, was afterwards *seen*, as well as heard, to utter something very nearly, if not precisely, like it.

2. An exceedingly loud honking or snarling yell given habitually, and very frequently, by the unseen Owl at Pine Point. I have never heard anything closely like it elsewhere. It varied considerably in form and expression, sometimes suggesting the flight-call of a Great Blue Heron, oftener the sonorous honk of a Canada Goose, occasionally the outcry of an enraged tom-cat, but was far louder than any of these sounds. Despite its unique character the fact that its author hooted so like the Concord bird makes it seem probable that he belonged to the same species.

3. *W'àugh* or *wàugh-ho* shouted in stentorian tones, with tremen-

dous emphasis, and not less loud and startling than the honking yell of the Pine Point bird, but otherwise unlike it. Although this outlandish cry has been mentioned by several visitors who evidently regard it as characteristic of the Great Horned Owl, and employed by him rather commonly, I have heard it only at Concord and there on no more than one occasion, although the bird uttering it was thought to be a Bubo belonging to a pair which had frequented the locality for years.

4. A barking *wah* or *wah-wah* much less loud and emphatic than the *wàugh* or *wàugh-ho*, and otherwise different from 1, yet heard in the same locality, (at Concord), and probably proceeding from the self-same bird. However that may have been, the author of the barking cry was certainly a female Cat Owl who, in broad daylight, when circling near her young, was seen to utter both it and the peculiar hurried and subdued hooting already described. She also uttered a low whining sound not unlike that made by a hen Partridge similarly concerned for the safety of her brood.

5. A full, clear, staccato whistle very like that of the Saw-whet, and possibly given by a bird of that species, although it seemed to come from the honking Owl, when he was serenading us at Pine Point. I have never heard it elsewhere, at least thus intimately associated with honking or hooting sounds.

6. A loud, rather duck-like *quoc-quoc-quoc*, also only heard at Pine Point, and there attributed to the honking Owl, although it may have had other authorship.

Early in June, 1871, C. J. Maynard, Ruthven Deane, and I were following a wood-road that led back into primitive forest from the old Lake House when a large, whitish egg, which proved to be that of an Owl, was noticed lying on the ground among fragments of a hollow stub that had fallen across the pathway not long before. Three more eggs essentially like it were presently found by delving into the heap of decayed and shattered wood. All four were more or less cracked, much weather-stained and so addled that we thought the bird must have deserted them at least a month or two before. My notes indicate that they were believed at the time to be eggs of the Great Horned Owl, but because of their number and of the fact that they had been deposited in a hollow tree it now seems to me more likely that a Barred Owl laid them. I cannot remember what became of them. Probably they were considered too seriously damaged to be preserved.

Nyctea nyctea (Linné).

SNOWY OWL.

Very rare winter visitor.

Because of its large size, generally white colouring, semidiurnal habits and fondness for frequenting open country, the Snowy Owl is one of the most conspicuous of birds. As it has seldom been noticed anywhere in the Umbagog Region, it must be of rare occurrence there. Indeed I doubt if it appears oftener than once or twice every fifteen or twenty years and then, of course, only in the winter or late autumn. Even the veteran hunter and guide, Luman Sargent, has met with it but once in all his long experience. This happened at the Narrows of Richardson Lake late in the autumn of 1897, when a bird perched on an upturned root at the water's edge attracted his attention. Just as he was getting within gun-range it rose on wing and flew off over a wooded point. He came upon it afterwards, farther along the shore, and then shot at it, cutting out two of its black and white flight-quills, but apparently doing it no other injury.

In mid-winter, about the year 1850, according to my notes, a man named Abbott, living not far from the post office on Upton Hill, surprised a Snowy Owl in the act of killing a hen *directly under his barn*, and dispatched it with a club, for instead of attempting to escape, it faced him boldly, and refused to relinquish its prize. It must have been hard pressed by hunger to behave thus rashly.

Surnia ulula caparoch (Müller).

HAWK OWL.

Of rare and irregular occurrence in late autumn and probably winter, also.

The visits of the Hawk Owl to the Umbagog Region are few and far between. At least it is known to have been seen there but seldom, although almost as conspicuous as a Buteo because accustomed to hunt freely by daylight and to perch in the tops of isolated trees. It prefers semiopen to densely-wooded country and is most likely to be met with in burnt lands or neglected pastures sprinkled with thickets of young spruces, while lake and river shores plentifully fringed with tall shrubs are also especially-favoured resorts. Doubtless it occasionally appears in winter, as well as late autumn, having repeatedly been

found elsewhere in northern New England at both seasons. My records relate solely, however, to instances of its occurrence in either October or November, and to only two years out of the forty or more during which I have kept in reasonably close and constant touch with ornithological happenings at the Lake.

In the autumn of 1884 four beautiful specimens of the Hawk Owl were added to my collection, through the kindness of friends then living or sojourning at Lake Umbagog. Catalogue entries relating to these birds supply the following data:—

9,597, ♂, October 25, 1884. Brought and presented to me this evening by Alva Coolidge who shot the bird earlier in the day in woods near the shore of B Pond, where he found it perched on the end of a prostrate balsam scarce six feet above the ground. It was apparently quite fearless, permitting him to approach within thirty yards. Although thin of flesh, it had feasted not long before on several White-footed Mice, as I ascertained by opening its stomach. Its irides were golden yellow.

9,612, ♀, October 31, 1884. Shot to-day by Charles B. Sherman. He was looking for Partridges along the northern edge of B Meadow and had just discharged his gun at one when the Owl appeared, probably startled by the report, and alighted near at hand on the topmost spray of a spruce or balsam. It had pale yellow irides and its stomach was well filled with Mice or their remains. I found no fat about it anywhere.

9,668, ♂; 9,669, ♀. These birds reached me at Cambridge in fresh condition on November 20, 1884, coming from Luman Sargent who shot them somewhere not far from the Lake on or about the 15th of the month. Their irides were lemon-yellow, their stomachs crammed with remains of White-footed Mice. Although in good flesh, they lacked all traces of fat.

The second autumn above referred to yielded me some slight personal field-experience with Hawk Owls at Lake Umbagog. This is described nearly as follows in notes written at the time:—

1889, October 12.— As James Bernier and I were returning late this afternoon from a shooting excursion down the Androscoggin River we encountered a Hawk Owl, the first individual I have ever set eyes on. He was perched in the very top of a dead ash, fully one hundred feet above the ground, on a twig no thicker than my finger. The tree stood near the middle of a stub-forest covering upwards of twenty acres of alluvial land lying between the River and the Lake in the neighbourhood of Moll's Carry, and now flooded everywhere to the depth of two or three feet. The water among the crowded tree-trunks was difficult to navigate because clogged with driftwood and also abounding in submerged stumps or roots. But by paddling around some of these obstructions, and pushing or dragging the boat over others, we finally got within fifty or sixty yards of the Owl. A moment later he fell wing-tipped into the water

before the report of my gun had ceased to crash and reverberate among the resonant stubs. When I picked him up by the tip of the uninjured wing, he opened his mouth wide and clutched at me savagely with outstretched talons, but did not snap his bill or make any sound whatever. On skinning and dissecting him I found that he was in vigorous physical condition, although devoid of fat, and that his stomach was well filled with the remains of Mice.

We entered the stub-forest about five minutes after sunset and the tall ash was not reached until ten or twelve minutes later, when dusky shades of night were beginning to gather and deepen low over the water. But the Owl was all the while exposed to strong afterglow light radiating from the western sky. It illumined him so clearly that he could be watched to excellent advantage except when my view was obstructed by intervening tree-trunks or my assistance required in handling the boat. As if absorbed in dreamy reverie on his lofty perch and taking no apparent notice of the rather loud sounds we could not help producing while forcing our way through rafts of driftwood, he continued to gaze serenely into the glowing west up to the moment when the gun was fired, making no movement save by occasionally turning his head slowly from side to side, or by raising or lowering his tail with equal deliberation. Never once did he change his posture. This, to my surprise, was very unlike that in which Hawk Owls are almost invariably figured by artists and mounted by taxidermists. For instead of sitting bolt upright the bird stooped sufficiently to keep the long axis of his body inclining upward at an angle of not more than 60°. Nor was he otherwise at all like the trim, shapely, and rather slender creature that the artists and taxidermists are given to representing, but on the contrary a plump, short-bodied, dumpy-looking fowl with up-pointed beak and puffed-out plumage. Although not expecting to find a Short-eared Owl in such a place, because of his appearance, I mistook him for one until I got sufficiently near to enable me to distinguish his characteristic colour and markings.

1889, October 19.— Late this afternoon I sailed across the Lake from Pine Point in a cruising canoe, with the intention of awaiting the evening flight of water-fowl at Moose Point. Shortly after arriving there I noticed a rather large bird perched on the topmost twig of a tall, slender, dead ash that stands on the south shore of the island in Leonard's Pond. Although half a mile away, he was so sharply outlined against the sky that he could be seen quite distinctly through my powerful field-glass. Viewed thus he looked so like the Hawk Owl killed a week ago that I felt assured that he must be another bird of the same species. This was ascertained to be the case, some fifteen minutes later, when I entered the Pond and approached the stub. The Owl, meanwhile, had not moved from, or perhaps on, his perch where he sat facing away from the shore and towards the western horizon, still illumined by the sun which had set upwards of twenty minutes before. His pose, shape, and general aspect were all so nearly the same as that of the bird encountered on the 12th, that he looked no less like a somewhat dishevelled Short-eared Owl, also reminding me of a plump hen Partridge with ruffled plumage. Every second or two his tail

was first raised and then lowered, rather slowly. Otherwise he remained quite motionless until the bow of my canoe, entering some flooded dry grass beneath the tree, made a slight rustling sound. This instantly attracted his notice, causing him to swing his head half around without shifting his foothold, so that his face and back were simultaneously exposed in my direction. After looking calmly down at me for a moment in this familiar Owl-like attitude, he resumed his hitherto uninterrupted and curiously steadfast gaze at the glowing western sky. Coveting him for a specimen I shot at him a few minutes later, but with no obvious effect other than to make him fly about one hundred yards to another dead tree, also standing near the water's edge. Here he was again approached and fired at, but again, to my bitter chagrin, miraculously escaped a charge of heavy shot, perhaps not quite scatheless, but certainly with no wound that impeded the use of his wings. This time they carried him almost a quarter of a mile, into dense woods at the far end of the Pond, where he became finally lost to me, although once more seen as he started from a low branch. His flight over the Pond was perfectly straight, exceedingly swift, and very graceful. Except when set during brief intervals of gliding, his wings were beaten ceaselessly and rapidly, with much the same nervous, quivering motion as that characteristic of the Duck Hawk. They, with the conspicuously wedge-pointed tail, looked long and shapely as did the body also, doubtless because its contour plumage was compressed by friction with the air. Altogether he seemed a well-proportioned, handsomely-modelled and pleasingly graceful bird when thus viewed in flight, albeit no less displeasingly awkward and ungainly than the first Hawk Owl, while on his perch.

1889, October 24.— We met with a third Hawk Owl this evening in a forest of dead larches covering many acres of marshy ground bordering on the Lake at the rear of Moose Point. He was first noticed shortly after sunset, perched on the topmost twig of one of the trees where he showed conspicuously against the sky, although hundreds of yards back from the shore which we were skirting in a boat. Before I could land to go in pursuit of him he was obliging enough to save me most of such trouble by flying straight towards us, and alighting scarce twenty rods away on an isolated stub. From this perch, however, he removed almost immediately to another somewhat farther off and surrounded, unfortunately, by a wide expanse of ice as thick as window glass and upheld, for the most part, by grass and bushes, the underlying water having fallen several inches after freezing over. Of course I found it impossible to cross such ground without making a loud crashing sound at every step, but although this might have been heard half a mile away in the tense stillness of that serene evening hour and would doubtless have startled almost any other bird, however preoccupied, into instant flight, the Owl seemed to disregard it and permitted me to approach it within thirty paces, thereby sealing his fate, for he dropped lifeless, a moment later, at the report of my gun. His posture and outlines when perched were essentially the same as those of the other two birds, but his behaviour was much more animated, leading me to think that he might be seeking prey. Every few seconds he bobbed his head up and down or turned

it quickly from side to side, while his tail was lifted still more frequently, sometimes so high as to give him a rather ludicrously undignified aspect, suggesting that of a fussy, scolding Wren or Catbird. His protracted flight across the marsh from the middle of the stub-forest was straight, swift, level, and in every other respect similar to that performed over Leonard's Pond by the bird seen on the evening of the 19th, but when he shifted from one tree to the other near the shore of the Lake he first swept down almost to the surface of the ground, and then swung steeply up to his final perch, thereby describing a deep loop at headlong speed and with infinite grace. Although in referring to this last Hawk Owl I have employed masculine pronouns freely, the specimen proved to be a female, as was indeed suspected from the very first, because of the fact that she looked almost a third larger than either of the other two birds. Her stomach contained abundant remains of Mice.

Having seen Hawk Owls only after sunset about the shores of the Lake, I am unable to assert, and perhaps also somewhat disinclined to believe, that they ever show themselves there in the middle of the day. However this may be, they are obviously much more given to diurnal activity in comparatively open places than are any other representatives of their family found in New England with, perhaps, the exception of the Short-eared Owl who is not always averse to roaming far and wide on wing in the full blaze of a noontide sun, over treeless expanses of marsh or moorland.

The following Publications of the Museum of Comparative Zoölogy are in preparation:—

Reports on the Results of Dredging Operations in 1877, 1878, 1879, and 1880, in charge of Alexander Agassiz, by the U. S. Coast Survey Steamer "Blake," as follows:—

A. E. VERRILL. The Alcyonaria of the "Blake."

Reports on the Results of the Expedition of 1891 of the U. S. Fish Commission Steamer "Albatross," Lieutenant Commander Z. L. Tanner, U. S. N., commanding, in charge of Alexander Agassiz, as follows:—

K. BRANDT. The Sagittae.
K. BRANDT. The Thalassicolae.
O. CARLGREN. The Actinarians.
W. R. COE. The Nemerteans.
REINHARD DOHRN. The Eyes of Deep-Sea Crustacea.
H. J. HANSEN. The Cirripeds.
H. J HANSEN. The Schizopods.
——. The Ascidians.
S. J. HICKSON. The Antipathids.
P. SCHIEMENZ. The Pteropods and Heteropods.
H. B. WARD. The Sipunculids.

Reports on the Scientific Results of the Expedition to the Tropical Pacific, in charge of Alexander Agassiz on the U. S. Fish Commission Steamer, "Albatross," from August, 1899, to March, 1900, Commander Jefferson F. Moser, U. S. N., commanding, as follows:—

G. W. MÜLLER. The Ostracods.
MARY J. RATHBUN. The Crustacea Decapoda.
G. O. SARS. The Copepods.
L. STEJNEGER. The Reptiles.
T. W. VAUGHAN. The Corals, Recent and Fossil.

PUBLICATIONS

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY

AT HARVARD COLLEGE.

There have been published of the BULLETIN Vols. I. to LIV., LVI., and LVIII. to LXV.; of the MEMOIRS, Vols. I. to XLII., and also XLIV. to XLVIII.

Vols. LV., LVII., LXVI., and LXVII. of the BULLETIN, and Vols. XLIII., XLIX., and L. of the MEMOIRS, are now in course of publication.

The BULLETIN and MEMOIRS are devoted to the publication of original work by the Officers of the Museum, of investigations carried on by students and others in the different Laboratories of Natural History, and of work by specialists based upon the Museum Collections and Explorations.

The following publications are in preparation:—

Reports on the Results of Dredging Operations from 1877 to 1880, in charge of Alexander Agassiz, by the U. S. Coast Survey Steamer "Blake," Lieut. Commander C. D. Sigsbee, U. S. N., and Commander J. R. Bartlett, U. S. N., commanding.

Reports on the Results of the Expedition of 1891 of the U. S. Fish Commission Steamer "Albatross," Lieut. Commander Z. L. Tanner, U. S. N., commanding, in charge of Alexander Agassiz.

Reports on the Scientific Results of the Expedition to the Tropical Pacific, in charge of Alexander Agassiz, on the U. S. Fish Commission Steamer "Albatross," from August, 1899, to March, 1900, Commander Jefferson F. Moser, U. S. N., commanding.

Reports on the Scientific Results of the Expedition to the Eastern Tropical Pacific, in charge of Alexander Agassiz, on the U. S. Fish Commission Steamer "Albatross," from October, 1904, to April, 1905, Lieut. Commander L. M. Garrett, U. S. N., commanding.

These publications are issued in numbers at irregular intervals. Each number of the Bulletin and of the Memoirs is sold separately. A price list of the publications of the Museum will be sent on application to the Director of the Museum of Comparative Zoölogy, Cambridge, Mass.

NOV 20 1937

Bulletin of the Museum of Comparative Zoölogy
AT HARVARD COLLEGE
VOL. LXVI. PART 3

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THE BIRDS OF THE LAKE UMBAGOG REGION OF MAINE

BY WILLIAM BREWSTER

CAMBRIDGE, MASS., U. S. A.
PRINTED FOR THE MUSEUM
NOVEMBER, 1937

PUBLICATIONS

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY

AT HARVARD COLLEGE

There have been published of the BULLETIN, Vols. I to LXV, LXVI, No. 1 & 2, LXVII to LXXIX, No. 1, 2, 3, 4. 5, 6 & 7, LXXX, No. 1, 2, 3, 4, 5, 6, 7, 8, 9 & 10, LXXXI, and LXXXII, No. 1; of the Memoirs, Vol. I to LIV, No. 1, 2 & 3.

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EDITORIAL FOREWORD

When Mr. Brewster died in 1919, he left behind him an uncompleted manuscript on the birds of the Lake Umbagog Region. Part 1 was published in June, 1924, and Part 2, issued in February, 1925, concluded the Hawks and the Owls. The balance of the existing manuscript, following the old (third edition of the A.O.U. Check-List) order is presented here, and concludes the accounts of the remaining non-passerine orders, the Flycatchers, Crows, and Blackbirds. It is to be understood that everything in Part 3 is by Mr. Brewster, except the biographies of the Canada Jay and the Bronzed Grackle, which were compiled by the writer from the diaries and journals. The only change made is that the names and nomenclature have been revised to accord with the latest A.O.U. Check-List.

The long delay in the appearance of Part 3 is due primarily to the fact that the completion of the work required the services of a compiler, who could work out the status of the remaining hundred species from the diaries and journals, and select extracts of special interest written with Mr. Brewster's inimitable charm and grace. The writer's editorial time has been more than occupied in recent years in preparing manuscripts, the publication of which was a Museum commitment, made long prior to the present project. It can now be definitely announced, however, that a final part will appear without unreasonable delay.

Ludlow Griscom

The Birds of the Lake Umbagog Region of Maine. Part 3

By William Brewster

CONTENTS

	PAGE
Coccyzus erythrophthalmus (Wilson) Black-billed Cuckoo	408
Megaceryle alcyon alcyon (Linné). Eastern Belted Kingfisher	409
Dryobates villosus villosus (Linné). Eastern Hairy Woodpecker	416
septentrionalis Nuttall. Northern Hairy Woodpecker	420
pubescens medianus (Swainson). Northern Downy Woodpecker	421
Picoides arcticus (Swainson). Arctic Three-toed Woodpecker	424
tridactylus bacatus Bangs. American Three-toed Woodpecker	430
Sphyrapicus varius varius (Linné). Yellow-bellied Sapsucker	440
Ceophloeus pileatus abieticola Bangs. Northern Pileated Woodpecker	451
Melanerpes erythrocephalus (Linné). Red-headed Woodpecker	461
Colaptes auratus luteus Bangs. Northern Flicker	463
Antrostomus vociferus vociferus (Wilson). Eastern Whip-poor-will	466
Chordeiles minor minor (Forster). Eastern Nighthawk	468
Chaetura pelagica (Linné). Chimney Swift	475
Archilochus colubris (Linné). Ruby-throated Hummingbird	479
Tyrannus tyrannus (Linné). Eastern Kingbird	482
Myiarchus crinitus boreus Bangs. Northern Crested Flycatcher	486
Sayornis phoebe (Latham). Eastern Phoebe	487
Nuttallornis mesoleucus (Lichtenstein). Olive-sided Flycatcher	488
Myiochanes virens (Linné). Eastern Wood Pewee	491
Empidonax flaviventris (Baird and Baird). Yellow-bellied Flycatcher	492
traillii traillii (Audubon). Alder Flycatcher	494
minimus (Baird and Baird). Least Flycatcher	498
Otocoris alpestris alpestris (Linné). Northern Horned Lark	498
praticola Henshaw. Prairie Horned Lark	499
Cyanocitta cristata cristata (Linné). Northern Blue Jay	500
Perisoreus canadensis canadensis (Linné). Canada Jay	503
Corvus corax principalis Ridgway. Northern Raven	508
brachyrhynchos brachyrhynchos Brehm. Eastern Crow	509
Dolichonyx oryzivorus (Linné). Bobolink	511
Molothrus ater ater (Boddaert). Eastern Cowbird	513
Agelaius phoeniceus phoeniceus (Linné). Eastern Red-wing	513
Icterus galbula (Linné). Baltimore Oriole	515
Euphagus carolinus (Müller). Rusty Blackbird	516
Quiscalus quiscula aeneus Ridgway. Bronzed Grackle	518

CUCULIDAE

Coccyzus erythrophthalmus (Wilson)

Black-billed Cuckoo

Common summer resident
May 27–September 6

The Black-billed Cuckoo occurs regularly in summer throughout the more open lowlands of the Umbagog Region and sometimes is almost as numerously represented there as in eastern Massachusetts, especially about the southern end of the Lake and in the Megalloway River settlements where it haunts wood-edges, brush-grown pastures, and thickets of tall alders along brooks and roadsides. On June 14, 1903, I heard two birds, which must have been a mated and breeding pair, calling to one another in a flooded thicket far up Cambridge River and encompassed by heavy forest, although bordering on B. Meadows. The species has not been noted often in the immediate neighborhood of the old Lake House, probably because there is so little open country there, but that about the Lakeside Hotel has always been one of its most favored resorts. Although ungiven to frequenting forest depths, it strays well back into them occasionally, even at the height of the breeding season. I have met with it repeatedly in dense, primitive forest on or near Pine Point, but only late in May or early in September when the birds were presumably migrating and bound further northward or southward. Apparently they are among the latest to arrive in spring and the earliest to depart in autumn, of all the lesser birds that frequent the region. Their presence at Pine Point was sometimes attested merely by the sound of their voices heard at night. Black-billed Cuckoos are much given to such nocturnal calling, particularly towards the close of the breeding season. The Yellow-billed species also indulges in it, but less frequently and persistently. Some ornithologists claim that it commonly proceeds from birds circling about on wing. Such is not my opinion, for, although listening to it countless times during warm midsummer nights, I have never once had reason to think that its author was in motion, while not infrequently the fact that he was perched in an isolated, leafy tree has been too obvious to admit of any doubt. Thus inert and enshrouded in gloom cast by foliage too dense to be penetrated by the faint starlight, he may continue to coo softly, at short, regular intervals for half an

hour or more, perhaps also giving occasionally the prolonged and hurried series of louder notes which he utters so frequently by daylight, especially in springtime. Being oftenest heard at that season, they probably represent his song. The corresponding utterance of the Yellow-billed Cuckoo is not altogether dissimilar, but briefer and more abruptly terminated, while the notes that compose it are harder and more raucous. Both species coo in the same subdued, mournful, dove-like tones, but when so engaged, the Yellow-bill always utters only a single note at a time, and then waits at least a second or two before following it with another precisely similar; whereas the cooing notes of the Black-bill are invariably doubled or trebled or quadrupled, or perhaps even quintupled, yet separated from one another within such grouping by scarcely appreciable pauses. As this rule seems subject to literally no exceptions, it furnishes a certain, as well as a simple, means of identifying cooing Cuckoos of either species by merely listening attentively to their voices. Hence it may serve very usefully in regions, such as southern New England, where both birds are found in the same localities and often in the same orchard or thicket. It need not be considered at Lake Umbagog, however, for the Yellow-billed Cuckoo is unknown to occur there.

On July 15, 1908, I witnessed the coition of two Black-billed Cuckoos in woods near Bethel, Maine. It took place on a branch only three or four feet above the ground. Although performed listlessly and intermittently, it was singularly protracted, for the two birds remained together at least four or five minutes, and did not finally separate until disturbed by my approach, when the male flew away and presently sang once. The female stayed quietly on her perch until I got near enough to see that she was a fully adult bird.

ALCEDINIDAE

Megaceryle alcyon alcyon (Linné)

EASTER BELTED KINGFISHER

Common summer resident. Abundant in early autumn
May 2–October 23

Kingfishers migrating northward in spring reach the Umbagog Region soon after its water-ways are freed from ice and continue to inhabit it until the near approach of winter. They breed throughout it commonly, if rather sparingly. Perhaps they would do so more

numerously if earth-banks suitable for nesting places were not so few and far between. Possibly their comparative scarcity in spring is due, at least in part, to the fact that at that season the small fish on which they depend for subsistence are widely scattered and lurking deep in swollen and murky flood water. However this may be, there is always a marked increase in the numbers of the birds about the first of July. During the next three or four weeks they are usually very plentiful, especially along the Lake-shores where myriads of little fishes now sport in waters no longer deep or very turbid. Although these conditions remain essentially unchanged through August, I have seldom noticed many Kingfishers anywhere in the region during the latter month, and often they have seemed no more numerous than in May or June. It would be interesting to learn what becomes of those present in July. Most of the latter probably come from breeding grounds not far off. Perhaps they are accustomed to migrate southward about the time when they so generally disappear. Be that as it may, there is commonly a second influx in September, even more considerable than the midsummer one, and presumably consisting chiefly of Kingfishers bred or breeding farther north. They begin to arrive soon after the first of the month, and are most numerously represented during the second and third weeks. Comparatively few remain after its close, and practically all are gone by the middle of October, while I have never known one to linger later than the 23d of the latter month. If, at the height of their abundance, the Lake be low, as is usually the case, they often so swarm about its shores that almost every stub or snag commanding an especially near or otherwise favoring view of minnow-haunted shallows is sure to be crowned at every hour of the day by one of the blue-mantled birds, gazing steadfastly down at the water, and now and then plunging into it after a fish. Certain perches, especially the more isolated ones, seemed to be greatly preferred to others, and for possession of these, the Kingfishers frequently engaged in clamorous quarrelling. One such, on the dead branch of an elm that stood by the river-bank at the Lake House landing, formerly served, I remember, as the very last resting place of many an ill-fated Kingfisher, being within tempting rifle-range of the hotel-porch where sportsmen (?) and guides were constantly lounging, gun in hand. Nevertheless, it seldom remained long unoccupied, for whenever a bird was hit or frightened away by a bullet, its place was sure to be taken quickly by another. This, I regret to say, went on season after season for unnumbered years without, however, appreciably lessening the local supply of Kingfishers ever ready to replace comrades thus slain. Hence their

rattling cries, mingling pleasingly with the noise of the rapids below the old mill, never ceased to be included among the sounds that one heard oftenest in summer, while sitting on the Lake House porch.

Although apparently more abundant about the Lake than elsewhere in late summer and early autumn, Kingfishers are by no means confined to its neighborhood at these or other seasons, for they also occur more or less commonly along all the rivers of the region, following them almost to their sources, where slender rills of pellucid water ripple over pebbly shoals beneath dense canopies of luxuriant foliage. Nor are there many forest-encompassed ponds too small and remote to be altogether unvisited. All such sheltered reaches and pools are especially resorted to when the Lake is swept by harsh and violent autumnal winds. Some are frequented in spring by birds breeding in sandy or earthy banks, cut through by the streams or by neighboring public roads, and perhaps no more than three or four feet high. For the Kingfishers of this region often have to content themselves with such nesting places, because of the almost total absence of vertical-faced banks of much greater height. The following data furnished by the journal relate chiefly to birds and nests that have come under my personal observation:—

1874, August 28.— A brood of six young Kingfishers, apparently not long out of the nest, are haunting Cambridge River just above the mill. They are very noisy, keeping up an almost incessant rattling, similar to that of adult birds, but more subdued.

1876, May 28.— Noted a pair of Kingfishers flying about what is evidently their nesting burrow. It enters the side of a drain dug (by man) through a gravel-bank. Freshly excavated earth beneath it indicates that it is not as yet completed, so I left it undisturbed.

1876, June 6.— Revisited the Kingfisher's burrow found on May 28, and dug it open. It was apparently finished, but contained no eggs, although evidently not deserted, for both birds were again seen near it. It was only three feet in length, and inclined slightly to the left before terminating in an oblong chamber about twelve inches long by ten inches in width.

1880, May 28.— George Hayward, a local hunter, appeared at the Lake House, bringing a few unblown eggs which Harry Bailey bought. Among them were seven of the Kingfisher, taken somewhere near the Lake, probably to-day or yesterday, and incubated a few days, although the date would be exceptionally early for a full set of fresh eggs in this region.

1880, June 5.— Took a set of seven slightly-incubated Kingfisher's eggs from a nest in a loamy bank no more than two feet in height, by the side of the road leading upon Upton to Cambridge, where it descends a hill fully an eighth of a mile from the Lake. The eggs were lying on a bed of fine fish-bones, in a

pocket-shaped cavity, at the end of the burrow which was about five feet in length. We thrust a stick into the hole and stamped on the ground above it without causing the sitting bird to appear, but as we were standing in front of it, shortly afterwards, she came out and fluttered heavily across the road, before flying more vigorously over the woods beyond. After this she was heard rattling in the distance towards the Lake, but we did not set eyes on her again.

1880, June 21.— A Kingfisher's nest, found and opened this afternoon, was in a low bank of fine, sandy, alluvial soil, bordering on Cambridge River where it flows through dense forest a mile or so below B. Meadow. The burrow ran straight back about five feet, and the eggs, six in number, were at its extremity, lying, as is usually the case, on a flattened mass of small fish-bones. They had been incubated a week or so. The female left them at once and flew from the hole, when we stamped on the ground above.

1880, June 22.— Six perfectly fresh eggs of the Kingfisher were taken to-day by Alva Coolidge from a nest in a hilly pasture at the rear of the Lake House. He brought with them a male Kingfisher which he caught in the burrow. Without question he had been *brooding the eggs*, for the skin of its entire belly was bare, and in that thickened, wrinkled condition characteristic of incubating birds. I afterwards examined the nesting burrow. Its situation was most unusual, for it entered the face of a low, grassy mound, where the sandy soil had crumbled down a little, but not sufficiently to form anything that could be called a bank. Almost anyone might have mistaken the hole for that of some small terrestrial mammal. Even Alva would doubtless have passed it as such had he not seen the Kingfishers near it. It was carried straight and level into the mound, for a distance of about five feet, to the nest, which was composed wholly of innumerable, small, slender fish-bones.

1897, June 2.— Watrous found a Kingfisher's nest yesterday, at Parson's Landing on the Lower Megalloway. We dug down into it from above this morning. It was in a bank of pure, hard clay about five feet above the present level of the River. The entrance hole, four inches wide by three and one half inches high, opened into a tunnel of nearly the same diameter and proportions, which ran almost perfectly straight, but trending slightly upwards, for exactly four feet from the face of the bank to the back of the nest-chamber. The latter had firm, smoothly-finished walls and was nearly circular, measuring twelve inches in width by eight in height. Its slightly-hollowed bottom was just twenty inches below the surface of the ground. Six perfectly fresh eggs, prettily arranged in a circle, were lying in the middle of this depression on the bare, damp clay, there being absolutely no trace of a nest, and indeed no extraneous material whatever, save a single small fish-bone. One of the birds, which had been perched on a projecting root within twenty yards of the hole, flew off, rattling loudly, as we approached the bank. The other was in the nest. It gave no indication of its presence there when a pole was thrust into the far end, but came out and flitted off in silence, just as we broke into the inner chamber from above. We did not see either Kingfisher sufficiently well to make sure which was the male and which the female.

My journal also contains the following passages relating to the habits, behaviour, etc. of Kingfishers observed in the Umbagog Region.

1895, September 5.— Kingfishers are unusually plentiful about the Lake just now. Every little indentation of the shore has its bird, and all the larger coves have three or four birds each, continually fighting and chasing one another about, because desirous of obtaining or retaining possession of choice fishing grounds. When the Lake is dead calm, as it has been to-day, the sound made by a plunging Kingfisher can be heard half a mile or more away. Coming from such a distance, it somewhat resembles the full, dull thud of a distant falling tree, but perhaps is more nearly like that of a very large stone thrown into deep water. Every evening, a little after sunset, two or three Kingfishers resort to Pine Point to spend the night. They fly directly into the forest and go to roost among the densest foliage, often that of spruces and arbor vitaes, growing anywhere from four to ten rods back from the nearest shore.

1896, September 9.— Shortly after sunset this evening, a Kingfisher came flying into the woods on Pine Point and alighted between my tent and the shore, among some birches, but on the branch of a small arbor vitae, where it sat for about five minutes with crest erect, glancing keenly in every direction, as if fearful of hidden danger. Every few seconds it jerked up its tail, at the same time lengthening and shortening its neck so as to produce a slow, up and down, bobbing motion of the head, very like that of an Owl. Next it moved to an equally low perch,— in a balsam, and remained there a similar length of time, behaving precisely as before. Finally it flew up into a tall, slender Paper Birch, and alighted near the end of a long branch, about thirty feet above the ground. Here it squatted down at once and began preening its feathers, but the bobbing movements of the head and the lifting of the tail were not resumed. As darkness gathered, the bird settled lower and lower on the branch, and drew in its neck without, however, burying its head in its plumage, for I could still see its bill pointing outward over the breast. At 9 P. M. I went under the tree, and by the light of a lantern dimly made out the Kingfisher, crouching in the same attitude, in exactly the same place. The birch stands on a steep hillside well within the woods, but no more than fifteen or twenty yards from a rocky shore of the Lake. Of late I have repeatedly seen or heard Kingfishers at evening, considerably further back in these woods. Sometimes two have dashed together through the little opening in front of our camp, chasing one another and rattling loudly.

1896, September 16.— The Kingfisher watched on the evening of the 9th has not since returned to the Birch at Pine Point. Perhaps my observation of it then was too disquieting or, in common with others of its kind, it may be ungiven to sleeping twice in the same tree. Many of the others habitually go to roost as early as this one did — that is, soon after sunset, but some linger at the fishing grounds until the shades of night are deepening even there. Up to the present time there has been no appreciable falling off in the number of

Kingfishers frequenting the Lake. For the most part they are very evenly distributed and spaced, averaging about one bird for every quarter of a mile of shore-line. This rule is not without exceptions, however, especially in remote and sheltered coves where shallow waters, teeming with minnows, are overlooked by dead trees or branches. Many a cove of this character, perhaps no more than a few acres in extent, is constantly frequented by at least two or three Kingfishers. Thus circumscribed, they do not get on well together, but are forever quarrelling and chasing one another to and fro with noisy outcry. On such occasions they often utter a harsh *car — car — car — car*, quite unlike the usual volley of watchman's rattle-like notes, and the only other vocal sound that I have ever known a Kingfisher to produce. One of two birds haunting our little cove at Pine Point, being, it would seem, somewhat deficient in strength or courage, invariably gives way to the other when attacked, and flies well back into the woods, but soon returns to be presently harried and driven off again. This goes on almost ceaselessly, throughout the entire day.

Although each Kingfisher habitually occupies and maintains, if it can, some favorite station, where it watches for prey with patience, no less untiring than that shown by veteran human anglers, it will, like them, occasionally shift its ground, should this prove unproductive. Thus the birds in our cove sometimes range at least an eighth of a mile from it in both directions along neighboring shores, or even cross the Lake to fish in the Androscoggin, where it winds through the Outlet marshes. During a canoe-trip down this River to Errol Dam and up the Megalloway to the Bottle Brook, we see very many Kingfishers. Indeed they seem to be quite as numerously distributed along both these streams as they are around the Lake-shores.

1900, September 14.— As we were taking photographs on the shore of the lagoon in Sweat's Meadow, a Kingfisher hovered near us and then plunged into the water, striking a fish so large, that he had to let it go after a brief struggle, during which he failed to bring it to the surface, although evidently trying his best to do so. I cannot recall ever seeing anything of the kind happen before.

1907, August 5.— An adult male Kingfisher alighted near me on a stub by the Lake-shore, and remained there twenty minutes, gazing intently down at the water most of the time. All the while he kept his crest erected and his mandibles slightly parted. Every now and then he would alternately raise and lower his body, at the same time bobbing his head up and down, much after the manner of a Screech Owl. These motions were sometimes accompanied by a slow lifting and lowering of the tail. Although I was in a canoe drawn up on shore within fifteen yards of the stub, and in nowise concealed, the bird did not once seem to notice my presence there; perhaps he was too preoccupied.

1907, August 10.— As I was paddling across the Lake and nearing B. Point this forenoon, two Kingfishers came flying past, low over the water, and within thirty yards of me, one following the other closely. To my great surprise the leading bird appeared to have a *wholly bright orange coloured bill*. Had he been seen alone, I might have suspected that the light was playing me some trick.

This, however, cannot well have been the case for, although exposed to my view at the same distance and angle, the bill of the other Kingfisher looked normally and uniformly dark in colour. The sun was shining dimly at the time through smoky haze, and perhaps also thin clouds.

1908, August 10.— Kingfishers are uncommonly scarce just now, even for the month of August, everywhere about the Lake and along its connecting rivers. Apparently there is not one where there were a dozen at this same time last year. Thus far I have perhaps met with only two, one on the Androscoggin; the other near Lakeside, where, however, the bird seen or heard doubtless may not always have been the same individual. Pearly Flint informs me that he has noted a similar dearth along Bear River in Newry. Alva Coolidge has been shooting Kingfishers near the Abbott Mill in Upton, but inasmuch as they have suffered similar persecution there since time immemorial, his slaughter of no more than half a dozen can have had little, if anything, to do with their general scarcity throughout the region. Probably they have merely gone elsewhere in greater numbers than usual to spend the month of August.

Being thought to prey extensively on trout in certain waters of the Umbagog Region, Kingfishers are mercilessly shot, not only there but everywhere throughout the Region, by sportsmen, guides, and hunters ignorant or careless of the fact that when frequenting the Lake-shores, where they are most numerously represented, the birds capture no fish of any value to man, and may even do him considerable service by thinning the schools of minnows and other lesser fry which are said to devour the spawn of salmon and trout whenever it can be had, thereby seriously retarding the much desired increase of these game-fishes. Ardent bird-lovers are not disposed, of course, to trouble themselves overmuch about considerations so purely utilitarian. From their viewpoint, Kingfishers, Sheldrake, Loons, and other water-frequenting birds are far too interesting and attractive to be ruthlessly slaughtered anywhere, and should be made welcome, except, perhaps, near fish-hatcheries, to such fish as they require, whether of commercially valuable or worthless kinds. Fortunately this way of looking at the matter is fast becoming rather general, thanks to the ever increasing numbers and influence of men and women deeply interested in bird-conservation. Indeed many species of fish-eating birds, not, however, including the Kingfisher, have of late been given legal protection in New England, despite the protests of fishermen and fish-cultivators, who seem to think that all our ponds and streams were created for their especial benefit and should be administered accordingly.

PICIDAE

Dryobates villosus villosus (Linné)

EASTERN HAIRY WOODPECKER

Common permanent resident

The Umbagog Region was a veritable paradise for woodpeckers during the earlier years of my personal acquaintance with it. Never have I found them in equal abundance and variety elsewhere except, perhaps, in certain remote parts of our South Atlantic States. They bred most plentifully in the immediate neighborhood of the Lake, drilling fresh holes every season in the barkless, weather-beaten trunks of trees, killed more or less long before by inundation, and standing in crowding ranks almost everywhere along the shores. As the holes multiplied ceaselessly from year to year, yet changed but little in outward aspect with advancing age, their conspicuous and abounding presence gave an exaggerated impression of the total number of woodpeckers, besides adding greatly to the difficulty of locating occupied nests; for very many of these could not be distinguished with any certainty from those long since abandoned, unless climbed to and opened, or unless birds were seen to enter or leave them. The stub-frequenting woodpeckers of every kind and size were much given, in spring time, and less so in autumn, to hammering rapidly with their bills on dry, resonant tree-boles, evidently for the sole purpose of producing the drumming sounds characteristic of most, if not all, members of their tribe, and apparently serving them in the same way as similarly far-reaching vocal utterances serve various other birds. This woodpecker's drumming used to be heard everywhere about the Lake during the earlier hours of clear, calm mornings in May and June. Coming from various distances and directions, it sometimes swelled into a volume of rolling sounds lasting several minutes, and not unlike that of innumerable croaking Leopard Frogs, but oftener it was more intermittent, although seldom discontinued altogether for more than a few seconds at a time. The birds that made it obtained most of their food, not among the decaying stubs, but somewhat to the rear of these, in living forest, as yet comparatively unscathed by axe or fire, and which began wherever ground not cleared by man was elevated above the reach of flood water, stretching thence in almost every direction as far as eye could reach. Many or few woodpeckers of each species

also nested throughout it in scattered pairs while all of them, except the migratory Flickers and Sapsuckers, dwelt chiefly in its fragrant and sheltered depths during the colder months of the year.

Of course the stubs could not last indefinitely. One after another they crumbled and fell, or were cut down to serve as fuel for people living or camping about the Lake. They had ceased to abound along many of its shores by 1890, and ten years later were no longer very noticeable anywhere except near the Outlet and in a few of the remoter coves. Since then the woodpeckers have bred mostly within the living forest, but in ever-diminishing, rather than increasing, numbers. Evidently it has become less and less attractive to them, especially among the larger coniferous trees, probably because of the sad havoc wrought in it of late by lumbermen.

The Hairy Woodpecker has been less affected by these changes of local environment than have most of its kindred. Indeed it is, perhaps, almost as numerously represented now, as formerly. While the stubs lasted on the Lake-shores, it bred in them regularly and very commonly, yet not more so than in those scattered about singly in upland pastures and other clearings bordered by woods, or over wide burnt lands growing up to trees and bushes. At the present time it is chiefly confined to such semi-open uplands during the breeding season, although continuing to nest here and there close to the Lake, as well as along heavily timbered banks of streams. It roams throughout the forest at every time of year, and is one of the birds oftenest seen near lumber camps. Vandal hunters, also resorting to them, used to make it serve rather frequently as a living target for rifle-practice, but this, I trust, no longer happens. The field-notes relating to it in my journal mostly concern nests and nesting birds observed during collecting excursions made by boat about the shores of the Lake. Some of them may be reproduced briefly as follows:—

1874, August 1.— A young male shot on this date had the entire crown red and was otherwise in first plumage.

1874, August 7.— An immature male taken to-day, was moulting and changing from first to autumn plumage.

1876, June 2.— Found the nest of a Hairy Woodpecker in a small stub, not more than three feet above the surface of water which surrounded it. The male bird came out when we thumped the tree with a paddle. Young could be heard within, making a soft twittering.

1876, June 7.— On this date we cut into the Woodpecker's nest found on the 2d. It contained four young about as large as Sparrows, but unfeathered. Although left undisturbed, they were all dead when we revisited the place a few

days later, having evidently been deserted by their parents, doubtless because of the damage we had wrought to the nest by enlarging the hole. Its entrance measured one and seven eighths inches across, its interior four inches in diameter by thirteen inches in depth.

1879, June 5.— Nest at least sixty feet above surface of Lake in dry, hard ash-stub. Its entrance hole looked very small, but was not examined closely. The male and female parents came alternately with food for the young, who received it with a prolonged outburst of chattering cries, similar to those made by most young woodpeckers while still in the nest.

1880, May 17.— Nest near the top of a tall birch-stub standing on the Lake-shore. We found it by happening to see one of the Woodpeckers fly to the hole, where it gave a harsh cry, which brought out its mate, whose place it took. Uttering Kingfisher-like, rattling notes both birds came close about my guide as he was cutting into the nest, and one of them actually alighted for a moment *on his back*. Nevertheless, there were but three, perfectly fresh eggs. The set was complete, however, as I ascertained by shooting and dissecting the female.

1880, May 20.— A brood of clamorous young Hairy Woodpeckers in a nest in a stub on the banks of Cambridge River were fed at frequent intervals by their mother, but the father bird did not appear while I was there.

1880, May 21.— Found three nests of the Hairy Woodpecker. One in a birch-stub contained newly-hatched young; another, in a brown ash-stub surrounded by water and thirty yards from shore, three eggs about to hatch; the third, also in a dead ash over water, eggs far advanced in incubation which, unfortunately, were broken by the fall of the stub, and could not be counted.

1880, June 14.— Took two young birds from a nest of which they were the only occupants, although there may have been other young which had left it, for these were fully feathered and able to fly a little. Upon being placed in a box, they clung to its sides with their claws, and hammered loudly on the wooden surface with bills which seemed not hardened enough for such employment. They uttered rattling notes and softer calls, all of which sounded like those of adult birds. Both were extremely fat. Their mother appeared and set up a loud outcry as we were cutting open the hole, but she was too shy to approach us closely. Her mate was neither seen nor heard.

1881, May 14.— A nest from which the female emerged probably contained eggs, but we were unable to examine it closely. Another nesting hole which a male Woodpecker was seen to leave, proved to be empty and unfinished.

1881, May 23.— Took a set of four slightly-incubated eggs from a nest in a small Red Maple, which had only recently died, and was standing somewhat apart from other trees and full two rods from shore on flooded marsh-land near Leonard's Pond. The hole entered the trunk on the north side about seven feet above the present level of the water. The eggs were much stained by yellow liquid which exuded freely from the inside walls of the cavity. Alva thought it was mostly rain-water that had soaked into the wood from above, after becoming coloured by contact with the maple-bark. This was the nest found empty on May 14. Since then as we were rowing past one or the other bird has re-

peatedly shown its head at the entrance, without, however, coming out. Neither of them was seen or heard to-day.

1881, May 27.— Four eggs about to hatch, taken from a nest fifteen feet above the water, in a Black Ash-stub pierced by two other holes, in one of which a pair of Hairy Woodpeckers, doubtless these selfsame birds, hatched and reared young last year. The cavity occupied by them this spring has blackened inner walls and looks as if it may have been excavated before either of the other two.

Another nest examined to-day contained three perfectly fresh eggs which the female was brooding. On May 14 we started her from a newly drilled cavity which, when cut into, proved empty. Since then she has taken possession of an older hole, higher up, in which these eggs were found. It entered the east side of an ash-stub standing in a cove near the mouth of Cambridge River.

1897, May 31.— Found a Hairy Woodpecker's nest containing young in an ash-stub surrounded by the waters of a lagoon that winds back from the Megalloway River near Pulpit Rock. The hole appeared to be of rather ancient origin, for the wood around its entrance was dark and weather stained. We saw only one parent bird, the male, who fed the young at short, regular intervals, about once every minute, always bringing in the tip of his bill something that looked like a grub, and was sufficiently large to separate his mandibles noticeably. When he entered the hole the young began an outcry resembling that of young Flickers, and continued it until shortly after his departure. The mother bird was not seen or heard.

1897, June 5.— A nest found to-day in a short maple-stub at the entrance to B. Brook Cove had four eggs, on the eve of hatching, which we left undisturbed.

It will be noticed that the above records relate solely to nests found on or near the shores of the Lake or rivers. This is partly because we sought them mostly there, and also because those met with less often elsewhere invariably contained chattering young or seemed too difficult of access to be worth climbing to, and hence were seldom or never inspected closely.

Young Hairy Woodpeckers belonging to the same brood commonly remain together in the immediate neighborhood of the nest for a week or more after leaving it, and during this period are accompanied, if not also fed, by one or both parents. But as soon as they become strong of wing and able to shift for themselves, they part company and may scatter rather widely, perhaps while still clothed in first plumage. After midsummer it is unusual to find more than three birds of any age in close association, while most of them occur either singly or in couples, often made up of birds of opposite sex which are, perhaps, already mated for the nest breeding season, if not for life. Although given to unrestrained and ubiquitous local wandering in autumn and winter,

they evidently prefer, even then, to haunt the confines of the forest rather than its remoter depths, and are more likely to be found among deciduous than among evergreen trees. Whether or not any of them migrate from the region in late autumn I am unprepared to say, but it seems probable that this must happen sometimes. They have at least three different vocal utterances, all of which are employed by birds of both sexes and almost every age. The commonest of these is a guttural *tchick*, differing from that of the Downy Woodpecker only by being somewhat louder and more resonant. A harsh, rattling outcry, already alluded to, is much less often used. It has a close, general resemblance to that of the Kingfisher, although delivered less rapidly and smoothly. The third utterance consists of subdued *whicker-whicker-whicker* notes, given by mated birds amourously inclined in spring, and then but rarely. To my ears it is practically indistinguishable from that so characteristic of the Flicker. The drumming sounds produced by the bill of the Hairy Woodpecker unite to form a prolonged roll, uniform from start to finish.

It is by no means unusual for Hairy Woodpeckers to leave the forest and to appear about farm-houses, or perhaps on the outskirts of villages, during mild, windless days, even in midwinter. I have repeatedly seen them in winter in Dr. Gehring's orchard at Bethel, eating the pulp of frozen apples clinging to the trees, of which they seem to be especially fond.

Dryobates villosus septentrionalis (Nuttall)

Northern Hairy Woodpecker

Rare visitor in fall and winter

This race was not recognized by the A.O.U. Committee until long after Mr. Brewster's death. Two specimens in his collection are much nearer this subspecies than typical *villosus*. They were shot on Oct. 10, 1885 and Oct. 27, 1884. The breeding birds of Lake Umbagog are much nearer typical *villosus*, but average appreciably larger. (cf. Griscom, Bull. Essex Co. Ornitholog. Club, 1935, pp. 4–6.)

Dryobates pubescens medianus (Swainson)

NORTHERN DOWNY WOODPECKER

Common permanent resident

Much of what has just been written concerning the Hairy Woodpecker would apply equally well to the Downy, for throughout the Umbagog Region the two species occur together, or in close proximity, and have essentially similar habits. But of the two, the Downy is somewhat the less numerously represented and the more inclined to dwell in places not far removed from those regularly inhabited by man. Thus while it may be encountered almost anywhere in primitive forest at every time of year, its favorite haunts, especially in spring, summer, and early autumn, are wood-edges bordering on farms, roadsides or river-banks, and dense growths of vigorous young hardwood trees springing up in neglected pastures, or other clearings. It also loves to frequent alder thickets along the courses of brooks. Almost all such covers possessing decayed tree-trunks, however lowly, are included among the breeding haunts of the Downy, and have been as far back as anyone can remember. But during the period when stubs continued to abound about the Lake, they attracted by far the larger proportion of nesting birds. These, however, were nowhere really plentiful. Indeed each stub-fringed cove or shore usually harboured no more than a single pair. But being scattered everywhere along the water-front, and accustomed to show themselves conspicuously there, they seemed, and indeed were, rather numerous in the aggregate. From first to last we found many of their nests in the immediate neighborhood of the Lake. Some of these are mentioned in the following extracts from the journal, which also include miscellaneous data relating to the habits and behaviour of birds met with after the close of the breeding season, as well as during its continuance.

1874, JULY 7.— Shot a young male Downy Woodpecker. It is in first plumage and has the entire crown scarlet.

1874, AUGUST 1.— Young Downies are still keeping together in broods, accompanied by their parents, but I have been unable to ascertain that either they or the young of the Hairy Woodpecker are fed by the parents after leaving the nest.

1876, JUNE 15.— Three fresh eggs taken from a stub in upland woods. The hole was about twenty feet above the ground.

1876, JUNE 25.— Watched a Downy Woodpecker engaged in catching flying *Diptera* among stubs by the Lake-shore. He launched out after them repeatedly and caught several, although evidently pursuing the occupation less adroitly and successfully than does the Sapsucker, who is so much more given to it. Another Downy, met with later in the day, was similarly occupied.

1879, JUNE 13.— Took a set of three eggs, incubated about four days, from a nest forty feet above the ground, in a stub standing near the shore of the Lake. We first noticed the hole on May 25, when it must have been unfinished, for an unseen bird was pecking somewhere within it.

1880, JUNE 5.— Sometime after the middle of May, but at an unrecorded and now forgotten date, we saw a male Downy Woodpecker excavating a hole about fifteen feet above the present surface of the Lake, in the top of a very rotten ash-stub surrounded by water. The nest contained five eggs to-day. They had been incubated almost, if not quite, a week.

1880, JUNE 7.— Young several days old were found in a nest examined on this date.

1896, MAY 23.— Six slightly-incubated eggs were taken from a hole in a large Yellow Birch-stub, standing several hundred yards from the Lake, at the rear of Pine Point, on the crest of an elevated ridge, covered with primitive forest free from undergrowth, and made up chiefly of fine old Yellow and Canoe Birches, Rock Maples, etc. The stub was too far advanced in decay to be climbed without serious risk, but Watrous finally reached the nest, which was upwards of thirty feet above the ground, by means of a rope stretched past it and securely fastened to the trunks of living trees. Both birds flew close about him as he was cutting into it and one of them perched, for a moment or two, on the rope.

1896, MAY 28.— By pounding at the base of a tall Black Ash-trunk long since dead, yet showing slight evidence of decay, and standing among other stubs of various kinds on a Lake-shore far removed from any living trees, we started a male Downy Woodpecker from a small, neat hole about twenty feet above the water. On climbing to this nest and opening it, Watrous found that it contained six slightly incubated eggs.

1896, JUNE 1.— Saw a female Downy leave her nest in a stub on the shore near Moll's Rock at halfpast ten o'clock this forenoon, when the male immediately took her place. Shortly afterwards I started him out and obtained an excellent photograph of him as he was clinging to the trunk just beneath the hole. Presently he returned to the nest and entered it, *bearing in the tip of his bill* what looked like a small, pulpy mass of larvae. This led me to infer that it must contain young, which were not fed on this occasion by regurgitation, as young Flickers are. I heard no sound from them, however.

1897, JUNE 3.— A nest about twenty feet above surrounding water in a stub so weakened by decay that it was unsafe to climb. We tried to lower it with a rope, but this failed to hold and the trunk came crashing down. Among its fragments we found several eggs of the Downy, all freshly laid.

1897, JUNE 2.— Several pairs of Downy Woodpeckers and Sapsuckers were seen about the shores of Bottle Brook Pond when we first reached it this morning. A nest of the former species was found later in the day in a dry maple-stub standing at the water's edge, just outside the confines of dense evergreen forest. Its entrance hole is no more than eight feet above the surface of the water and is perhaps the smallest that I have ever known any woodpecker to make. When disturbed by one or two blows of an axe at the base of the trunk, the female Downy thrust out her head; it seemed to fill the opening completely. Nor did she succeed, shortly afterwards, in forcing her body through it, without struggling rather violently for at least two or three seconds. This happened about 4 P. M.

1897, JUNE 4.— Revisiting the Downy's nest at Bottle Brook Pond about nine o'clock this morning, we again started the female from the hole, through which she wriggled with no less obvious difficulty than on the first occasion. There were five slightly incubated eggs within.

Inasmuch as the vocal sounds made by the Downy Woodpecker are presumably familiar to almost everyone, they need receive only brief consideration here. The ordinary *tchick* call is, of course, very like that of the Hairy, but feebler. A less frequent and more prolonged utterance may perhaps correspond to the Hairy's rattle, although consisting of much softer notes, which follow one another very rapidly and smoothly in a descending scale, whereas those of the Hairy are somewhat halting and all on the same key. The Downy indulges occasionally, but only very rarely, in a snickering outcry which closely resembles that to which Red Squirrels are so addicted. This is sometimes kept up almost ceaselessly for several succeeding minutes. It is referred to as follows in the journal:—

1896, SEPTEMBER 10.— As I was sitting in the camp at Pine Point this evening my ears were greeted by a peculiar, low-pitched *chur-r-r-r-r*, which I was inclined at first to attribute to a Red Squirrel, but presently traced to a pair of Downy Woodpeckers who were playing about among the stems of a cluster of Mountain Maples, growing only a few yards beyond our open stone fireplace. One or both birds repeated these cries a dozen times or more before flitting further off. They were in full autumnal plumage.

Picoides arcticus (Swainson)

ARCTIC THREE-TOED WOODPECKER. BLACK-BACKED THREE-TOED WOODPECKER

Locally common permanent resident

Arctic three-toed Woodpeckers inhabit the Umbagog Region at every time of year. Inasmuch as their numbers vary comparatively little at different seasons, we may infer that they are essentially non-migratory. Although less ubiquitous than most other members of their tribe and nowhere really plentiful, they occur commonly enough in very many localities where, however, they seldom attract human notice, being habitually silent and retiring birds, chiefly confined to haunts not much frequented by man. Most favored of these are cedar swamps filled with crowded growths of intermingling arbor vitae and larch and primitive coniferous forests, extending far and wide over low-lands more or less subject to inundation. We used to meet with them oftenest and by no means infrequently in heavy timber of this character bordering on the shores of the Lake, as well as in that which once flourished so generally throughout the wet bottom-lands of Cambridge River and of the lower Megalloway. Here the sable-plumaged birds dwelt at all seasons in peaceful seclusion, sheltered alike from summer sun and winter blasts by dense evergreen foliage overspreading shallow pools of stagnant water. They rarely showed themselves on the borders of clearings, and were never known to visit outlying orchards or shade trees near farm-houses, but sometimes indulged in autumnal or winter roving over elevated slopes and ridges wooded mostly with maples, beeches, and other deciduous trees. Where they occurred most regularly and plentifully there might be, on the average, a breeding pair in spring for every hundred acres or so of swampy wilderness, and in autumn perhaps half a dozen scattered individuals of various ages. Except when breeding or still associated in broods of young just after leaving the nest, they commonly led solitary, as well as sedentary, lives, although two or three of them were sometimes seen together or in the same immediate neighborhood. Inconspicuous by reason of their sombre colouring, especially when clinging motionless to tree-trunks blackened by fire or darkened by heavy shadows, and but little addicted to producing far-reaching sounds, either vocal or mechanical, they were easily overlooked, even by keen and experienced collectors seeking them persistently. Every now and then, however, a bird in

motion might attract attention or one unseen betray its whereabouts by uttering its resonant *kloc* call, unlike that of any other woodpecker, except the Banded Three-toed, and closely resembling the sound of a distant axe-stroke. Still more frequently the nearby presence of a hidden bird would be indicated by subdued and intermittent tapping sounds which it made with its bill while in quest of food. Thus occupied it was unlikely to be much disturbed by close human approach, and might remain for half an hour or more on the same tree-trunk, (usually that of a dead or dying spruce or balsam), or perhaps spend an entire forenoon within an acre or less of woodland. Although ordinarily confining its daily feeding range to narrow limits, especially in spring and summer, such a bird would every now and then undertake rather protracted, galloping flight well above the tree-tops or across broad stretches of lake or river, for the purpose of paying brief visits to unaccustomed haunts. Despite its habitual distaste for extended roving and for displaying itself conspicuously anywhere, the Black-backed Three-toed Woodpecker is by no means a sluggish or spiritless-seeming bird but, on the contrary, one obviously endowed with superabundant vigor, untiring energy, and self-reliant hardihood. Its possession of all these qualities is plainly indicated by its alert bearing and spirited movements. Without them it could not, indeed, maintain itself long in a region where the winters are so bitter and prolonged, and where the food on which it must chiefly depend, is not to be procured at any season save by the expenditure of much muscular effort. At all times strikingly handsome and distinguished looking, it seems most impressively so when an adult male, in full view and near at hand, erects the silky feathers of his golden crown in a fluffy crest exposed to bright sunlight, and seen against a background of dark evergreen foliage. Then one may well doubt if our northern forests can harbour any other creature more truly admirable to behold.

I have been unable to ascertain that the Arctic Three-toed Woodpecker often occurs or ever breeds in the somewhat stunted spruce growths which clothe the more elevated mountain slopes and ridges of the Umbagog Region. Certainly it is confined, for the most part, to heavier timber at lower altitudes, at least in spring and summer. Of late years it has perforce deserted much of the country immediately about the Lake and along the neighboring river-course, because of the wide-spread havoc wrought there in evergreen forests by lumbermen, but it still frequents certain of these sections which have escaped such devastation, and is apparently no less numerously represented than of yore in many of the cedar swamps, where local conditions have re-

mained essentially unchanged. It used to nest occasionally in stubs scattered along the shores of the Lake and fully exposed to winds and sunlight, but was much more given to doing so well within sheltered depths of living forest. Some of my field-experiences with the bird in its characteristic haunts are described in the following passages taken from journal or note-books:—

1871, June 3–14.— Three Black-backed Three-toed Woodpeckers were obtained during this period in the neighborhood of the Lake House by Deane, Maynard, and myself. One that I shot on the 14th was hammering at a prostrate tree-trunk in a windfall by the Lake-shore.

1873, July 31.— Found an adult male accompanied by a young bird still in first plumage, feeding among stubs on the banks of Cambridge River, not far below Abbott's Mill.

1873, September 7.— Saw one bird and heard several others in dense arbor vitae woods bordering on Richardson Lake.

1874, August 10.— A young female in first plumage, shot by my friend William Stone in the Tyler Bog, had a rather conspicuous patch of yellow feathers on the crown.

1876, May 26.— Shot a pair of Black-backed Woodpeckers in heavy spruce timber near the Lake and not far from the Lake House. Dissection of the female showed that she had laid no eggs as yet and might not have begun doing so for a week or more to come.

1876, May 30.— The female of a pair taken to-day had evidently laid at least several eggs of late.

1876, May 31.— Woodpeckers of this species must begin laying at rather widely varying dates, for dissection of a female killed in the Tyler Bog this forenoon satisfied me that she had deposited no eggs during the present spring, and probably would not have done so until considerably later.

1879, June 4.— In swampy, evergreen forest through which Cambridge River winds half a mile or more above Abbott's Mill, I found to-day, a nest, (my first), of the Black-backed Three-toed Woodpecker. A brood of young that it contained drew my attention to it by their querulous chatter. Both parents were feeding them. About three minutes usually elapsed between the departure of one and the return of the other bird. When the male emerged from the hole, his golden crown patch, bordered everywhere by coal-black plumage, was conspicuously and attractively displayed. He seemed somewhat disturbed by my near presence, and once watched me suspiciously for several minutes, clinging to the stub and twisting his body about incessantly. Shortly afterwards he flew off into the swamp and began calling anxiously or protestingly, at first uttering the ordinary *kloc* note, then substituting for it a harsh, rolling clamour unfamiliar to my ears, and kept up almost ceaselessly for a considerable time. The nest was in a dead fir standing near the river-bank and closely surrounded by living Balsams and White Spruces. Its entrance hole,

perhaps thirty feet above the ground, was neatly drilled and similar in size and general appearance to that of a Hairy Woodpecker.

1879, JUNE 13.— Revisiting the Three-toed Woodpecker's nest on the banks of Cambridge River, this morning, I saw both parent birds come to it repeatedly with food for their young. In no instance did either of them enter the hole, as was invariably their practice on the occasion of my first visit. To-day they always alighted just below the entrance and deposited whatever they brought in one or another of the eager, gaping mouths thrust out to receive it. More than this I failed to see, for the act of transference was performed rather quickly, and the precise character of the food could not be ascertained without killing one of the parent birds. The young kept up an incessant chatter, loud enough to be noticeable one hundred yards or more away.

1879, JUNE 17.— The young Three-toed Woodpeckers were still in the nest this morning and chattering like a host of Kingfishers, their clamour being literally ceaseless, and louder than ever before. One, looking out of the hole, showed a well-developed yellow crown-patch, and seemed to be almost fully grown and feathered.

1879, JUNE 21.— The Three-toed Woodpecker's nest was tenantless when I visited it to-day for the fourth and last time. Nor were any of the birds to be found in the neighborhood, although two (both adults) were seen near the Lake House.

1880, MAY 19.— Took a set of four slightly-incubated eggs of the Black-backed Three-toed Woodpecker from a nest in a Red Maple-stub, standing in a cove of the Lake behind Great Island, where the shores are densely wooded with arbor vitae, twenty yards from the outermost ranks of living trees, and surrounded by water six or more feet in depth. The entrance hole was near the base of the stub and not more than five feet above the surface of the water. As we neared it in a boat, the female Woodpecker popped out her head and shortly afterward flew to a neighboring stub. Quickly returning she peeped into the hole for a moment and then entered it, not without a struggle, however, for it was evidently a "tight fit" for her stout, muscular body. By noiseless use of the paddle we reached it without again disturbing her, and plugged it with a handkerchief. This being afterwards removed and my fingers thrust in, she pecked at them viciously, driving her sharp-pointed bill into them to the bone at every stroke and uttering rattling cries not unlike a Kingfisher's. Thus assailed I was glad enough to withdraw the lacerated fingers, but still kept them close to the hole in the hope of catching the bird as she came out. She was too quick for me, however, eluding my grasp and flying far off into the woods to be seen no more. Shortly after this the male appeared, and without seeming to notice us, entered the hole. Being either more timid or more prudent than his mate, he could not be induced to leave, or even show himself by any of the means we tried. So we finally cut an opening in the trunk a little above the eggs, and I took him from them with my hand. When seized, he uttered a rattling cry similar to that made by the female, but made absolutely

no resistance, save by struggling to escape; nor would he strike at my fingers even when they were held within easy reach of his bill.

1880, May 27.— Not far from where Rapid River enters the Lake, in a secluded cove having low shores narrowly fringed with verdant arbor vitae forest, we found a nest of *Picoides arcticus*, this forenoon, on a half submerged little island devoid of living trees, but sprinkled with weather-beaten stubs. In the north side of one of these, a Canoe Birch trunk of medium size, standing well apart from the rest, and still encased in white bark, the Woodpeckers had drilled their hole, some fifteen feet above the ground. The male bird was sitting on four eggs long incubated and indeed about to hatch. He came out and flew to the mainland when we struck the stub with an axe. The female was not seen.

1880, May 28.— George Hayward, who lives by the Lake-shore near the mouth of Cambridge River, appeared at the Lake House to-day, bringing a set of Black-backed Woodpecker's eggs with the bird that laid them. He had killed her at the nest which, according to his testimony, was about eight feet above the ground, in the trunk of a *living* spruce having, however, a decayed heart. Henry B. Bailey purchased the eggs, which were three in number and perfectly fresh. I skinned and dissected the bird, finding within her four eggs so nearly matured that it seems probable that she might have added them to her set had Hayward left her undisturbed.

1881, May 14.— Dissection of a Black-backed Woodpecker shot to-day, close behind the Lake House, showed that she had already begun laying, and would have deposited two more eggs, if her life had been spared.

1882, October 16.— While traversing a wood-road that leads southward from Errol along the banks of the Androscoggin, Charles F. Batchelder and I observed three Black-backed Woodpeckers sporting together on a tall stub, chasing one another about its trunk and indulging in prolonged outbursts of subdued, chattering cries, very like those which Hairy Woodpeckers utter when similarly engaged.

1883, October 20.— Not far from the Lake House, on the wooded margin of the river-meadows which it overlooks, I came upon a female Black-backed Woodpecker, keeping close company with two Hairy Woodpeckers — a very unusual occurrence, to judge by my past experience. All three birds were engaged in a merry game of romps among some fallen tree-tops and evidently enjoying it greatly.

1883, October 23.— Shortly after sunrise this morning, Luman Sargent and I were paddling down the Megalloway River, and approaching the mouth of Bottle Brook, when we saw, as well as heard, a Black-backed Three-toed Woodpecker, drumming on the resonant trunk of a dead tree. The sound produced was a smooth, even roll of no great length and indistinguishable, I thought, from that of the Hairy Woodpecker or of the Downy. Through the windless, frost-laden air it continued to reach our ears at short, regular intervals long after we had passed the spot. This was one of only a very few occasions when I have ever had opportunity to hear a Black-backed Woodpecker drum. Ap-

parently he seldom indulges in such a practice, even in spring, when most other members of his tribe are so much given to it.

1888, September 11.— The ordinary vocal call of a Black-backed Woodpecker, coming to my ears this morning from the depths of a swampy forest bordering on Cambridge River, sounded almost precisely like a distant axe-stroke, followed quickly by its echo.

1893, October 6.— A handsome male *Picoides arcticus* spent upwards of an hour this morning near our camp at Pine Point, seeking food on the fallen and partially-decayed trunk of a Red Spruce. Using his bill as a lever he would first pry off a scale of the rough outer bark and then thrust his extensile tongue into holes made by wood-boring insects in the wood beneath. When, by such means, a grub was definitely located, he proceeded at once to dig it out, working steadily, but with systematic diligence rather than eager haste, and in perfect silence, save for the sounds made by vigorous strokes of his strong bill. Oftener than not he removed several scales of bark successively, without finding anything to reward such effort. My presence in plain view at distances exceeding fifteen or twenty paces did not seem to concern him, but whenever I approached nearer than that he would cease hammering, erect his golden crown-feathers in a loose crest, and utter the axe-like *kloc*, *kl-oc* note many times in quick succession. Less often he emitted a low, scolding chatter (*eh-eh-eh-eh-eh*). Both forms of utterance were evidently used on this occasion to protest my further intrusion on his privacy or, in other words, to bid me "mind my own business." If, ignoring such protest, I continued to advance, he would soon fly to a nearby standing spruce, and clamber up it until hidden among its foliage, keeping on the back side of the trunk, yet peeping around it at me occasionally during the ascent.

1894, March 6.— Not far from Dr. Gehring's place at Bethel, Maine, in dense second-growth woods, where the trees were mostly beeches and maples, with a few scattered balsams and arbor vitaes, we came to-day upon a male Black-backed Woodpecker. For upwards of ten minutes he continued to hammer vigorously and noisily at the trunk of a fallen and dying, yet not wholly lifeless, balsam. At first he took no apparent notice of our presence,but when, at length, I drew his attention by rapping on the prostrate trunk, he scuttled around behind it, and remained there perfectly motionless for some time.

1908, March 7.— A female Black-backed Woodpecker, seen this morning in the Balsam woods at Bethel, uttered three distinct vocal calls, the ordinary *kloc* note, just before she took wing; a harsh, Kingfisher-like rattle, as she was flying off; and a rapidly-enunciated *kip-kip-kip-kip-kip*, after alighting in a tall poplar, where she perched *crosswise* on a lateral branch, precisely as a Robin or Jay might have done, for more than a full minute. The *kip* call was wholly unfamiliar to my ears; nor did I know before that Woodpeckers of this species ever perch in the manner just described.

Thanks to their habit of frequenting remote forests more or less difficult of access, where no one save an occasional bird-collector has ever had any particular desire to molest them, the Arctic Three-toed Woodpeckers of the Umbagog Region have, thus far, suffered comparatively little directly at the hands of man. Indirectly he has already done their race grievous harm, and may eventually accomplish its local extinction, by cutting so very many of the large coniferous trees on which the birds are dependent for food and shelter. When I first visited the Lake, tall spruces, Balsams, and other evergreens, flourished by countless thousands close about its shores. Indeed, the "black growth," as it was called, seemed then to dominate the landscape almost everywhere. One sees little of it now, except on the higher mountain crests, and even there it is fast melting away before the onslaughts of the lumbermen. With it, of course, must disappear, nearly, if not quite all the woodland creatures which cannot adapt themselves to the new order of things. However inevitable the change, it is none the less to be deplored, especially by those of us who have known and loved the region when it was still an essentially virgin wilderness.

Picoides tridactylus bacatus (Bangs)

American Three-toed Woodpecker

Rare permanent resident

Few birds constantly present in any part of New England are so imperfectly known to ornithologists and so seldom seen living by anyone as is the Banded Three-toed Woodpecker. It occurs in the Umbagog Region at every season, perhaps rather more numerously than elsewhere, yet so very sparingly that during the past forty years I have met with it living less than a score of times and have seen in all scarcely more than a dozen different birds. These may be recorded briefly, in chronological order of occurrence, as follows:—

1871, May 31.— Male shot by Lake-shore, not far from Lake House.
1880, May 25.— Male shot by Lake-shore, near Great Island.
1880, June 7.— Female shot by Lake-shore, near mouth of Rapid River.
1882, October 19.— Female shot in upland forest, half a mile from Lake.
1882, October 27.— Two birds seen together in Black Island Cove (of Lake).
1885, October 26.— Male shot near Lake-shore, opposite Metalluc Island.
1889, October 26.— Male shot near Pulpit Rock, Megalloway River.

1893, September 30.— Heard calling at Pine Point, Lake Umbagog.
1893, October 3.— Male seen at Pine Point, Lake Umbagog.
1893, October 4.— Heard calling at Pine Point, Lake Umbagog.
1893, October 5.— Heard calling at Pine Point, Lake Umbagog.
1893, October 13.— Male seen at Pine Point, Lake Umbagog.
1894, September 10.— Female seen at Pine Point, Lake Umbagog.
1894, September 12.— Heard calling at Pine Point, Lake Umbagog.
1894, September 26.— Heard calling at Pine Point, Lake Umbagog.
1897, June 2.— Nest at Bottle Brook Pond, Lower Megalloway. Male seen to enter it.
1897, June 5.— Nest at Bottle Brook Pond, taken with both parent birds and their two eggs.

Besides the eight specimens of my own collecting just enumerated, I have three others, a female taken on October 31 and a male and female on November 16, 1889, which J. M. Whitney, one of the old-time local guides, obtained for me in the immediate neighborhood of the Lake, and sent in the flesh to Cambridge.

It will be noticed that all the Three-toed Woodpeckers above mentioned were encountered close about Lake Umbagog, or at no great distance from it along the Megalloway River. The only additional instance of occurrence definitely known to me, and entitled to full confidence, is that of a pair of birds which my friend John E. Thayer found nesting, several years ago, on the shores of B. Pond, a forest-girdled sheet of water scarcely more than two miles distant from the Lake. That the species can be locally confined within limits so narrow as those just indicated is, of course, unlikely. Indeed, native hunters or trappers who claim to be familiar with it have repeatedly assured me that it occurs here and there along the banks of the Megalloway to Lake Parmachenee and beyond, as well as on various spruce-clad mountain-crests which overlook this river-valley or encircle Lake Umbagog. Although such testimony cannot be considered wholly reliable, it at least suggests that within the Umbagog Region the Banded-backed Woodpecker may be more generally, if not also more plentifully, distributed at higher than at lower altitudes. However that may be, the bird is certainly common nowhere in the low country, and apparently altogether wanting throughout many a broad expanse of virgin forest, tenanted by other woodpeckers of various kinds. Thus I have failed to ascertain that it ever appears anywhere in the bottom-lands through which Cambridge River flows for upwards of fifteen miles, before emptying into the Lake. Nor does it to my knowledge frequent cedar-swamps such as the Tyler Bog. Hence it would seem to

shun much, if not most, of the low-lying woodland wherein the Arctic Three-toed Woodpecker especially loves to dwell. In that bordering on the Lake and on the Lower Megalloway however, both species sometimes occur, and occasionally breed within sight or hearing of one another. Yet even here their respective haunts are not often quite the same, those of *Picoides arcticus* being usually, as has been said, confined to rather swampy places, whereas *P. americanus* is seldom or never found elsewhere than on the crests or sides of knolls or ridges in themselves well drained, but perhaps rising to no great height above neighboring water-soaked lands. Although the latter bird is not ungiven to roaming through primitive upland forests of every description, it evidently prefers such as abound in well-grown Red Spruces whose rough barked trunks, more or less far advanced in decay, apparently furnish most of its daily food, which seems to consist chiefly of wood-boring grubs, presumably much the same as those preyed on by other members of its tribe, and certainly obtained by no less patient labour. To this the Banded-backed Three-toed bird devotes practically its entire time in remote forest-depths. Nor is it accustomed to venture far from them when not thus engaged. Indeed, I have never once met with it anywhere in open country, nor even among the Lake-shore stubs, except where there were also intermingling leafy trees. The following field-notes relating to the habits and behaviour of the species were written at the Lake.

1871, May 31.— An adult male Banded-backed Woodpecker, shot among stubs at the edge of living evergreen forest, bordering on an opening not far from the Lake House, was very tame. He uttered a call resembling that of the Downy Woodpecker, but somewhat unlike it in tone.

1880, May 25.— A male taken and skinned to-day had evidently not begun incubating. I found him on a small, densely-wooded island near the western shore of the Lake south of the Narrows, busily engaged in digging under the trunk of a large dead spruce, presumably in search of grubs. He uttered no call.

1880, June 7.— Shot an adult female *Picoides americanus* in dense spruce forest, covering a steep hillside, bordering on a small and secluded cove of the Lake, near the mouth of Rapid River. She was pecking at the trunk of a dead spruce literally riddled with small holes, which she or other woodpeckers had drilled while seeking food. The tapping sounds made by her bill were loud and sufficiently peculiar to lead me to suspect, before the bird was sighted, that she might be something out of the ordinary. Dissection showed that she had recently completed her set of eggs and was incubating them. No doubt her nest was not far off, but we looked for it in vain.

1885, October 25.— Early this morning I landed from our boat on the western shore of the Lake, just north of the Narrows, and entered an ancient forest quite free from underbrush, and chiefly composed of large, wide-spreading Yellow Birches, with here and there a few Red Spruces towering skyward. The surface of the ground beneath these trees was everywhere smooth and sufficiently sloping to be perfectly drained at all seasons. While strolling through this attractive woodland, at a distance of some two hundred yards from the Lake, I heard a woodpecker tapping, and presently caught sight of the bird which proved to be a young male *P. americanus*. He was working at the trunk of a living and apparently sound spruce to which he clung for several minutes, without once changing his foothold, or often ceasing to deal vigorous strokes with his sharp bill at nearly the same spot. That it harboured food of one or another kind he must have felt assured, but I failed to perceive that any was secured. The sound of his hammering was indistinguishable from that produced by most woodpeckers. His characteristic white dorsal markings did not show conspicuously. Indeed he looked scarce less uniformly dark-coloured above than an Arctic Three-toe, but was noticeably smaller, of course. I finally shot him.

1889, October 26.— On our way up the Megalloway this forenoon we landed at Pulpit Rock. Hearing a woodpecker tapping on a nearby hillside, timbered heavily with Red Spruce, I followed up the sound and shot the bird, a female *Picoides arcticus*. Scarce half a minute later another woodpecker began making similar noises only a few rods off. It proved to be a handsome male *P. americanus*, working at the trunk of a large spruce. He, also, was quickly secured. Shortly afterwards still another Three-toe, a male *P. arcticus*, was added to the bag. He came flying across the river and alighted on the trunk of a tall, spire-shaped balsam, near where we were eating lunch on the sunny side of the rock. Although instantly killed by my charge, he clung so tenaciously to the tree, apparently by means of his bill, that we had to cut it down in order to secure him. To thus find both species of *Picoides* so very near together has never happened before within my personal experience. Such association on the present occasion was, doubtless, purely accidental.

1893, October 3.— A handsome male *Picoides americanus* visited the spruce-clad knoll behind our camp at Pine Point early this morning. After ascending several slender-stemmed young spruces in the manner characteristic of most woodpeckers, he flew to an uprooted hemlock and began hammering energetically at its bulky, prostrate trunk. Here he permitted me to approach him within four or five yards, taking no obvious notice of my presence other than by glancing at me curiously every now and then with his bright hazel eyes. At such close range I plainly saw him protrude his tongue fully two inches beyond the tip of his bill, and run it in between and over broad scales of bark which he had loosened. This action was repeated very many times. It led me to think that while performing it he must be licking up minute insects of some kind, but as I failed to perceive any of these it may have served some other purpose. His yellow crown-patch was very conspicuous when, as was frequently

the case, he erected its silky plumage in a loose crest. At length I approached the fallen hemlock still more closely, thereby obviously alarming the bird, and presently causing him to take wing. Just before doing so he called a dozen times or more in quick succession, uttering *tchuck* notes resembling those of the Arctic Three-toed Woodpecker, but less loud, resonant, and axe-like.

1893, October 13.— Hitherto I have been inclined to consider the Banded-backed Woodpecker a comparatively inert and habitually silent bird, but the behaviour of a beautiful male, seen at Pine Point to-day, failed to confirm this impression. For he was exceedingly active and very noisy, flying restlessly hither and thither among the trees and keeping up an almost incessant vocal clamour while clinging to, or scrambling up, the trunks of tall pines and spruces. He used only a monosyllabic utterance, essentially unvaried, yet not always quite the same in quality, and best rendered, I thought, as *tchick*. This note sounded very like the customary, familiar call of the Hairy Woodpecker. Indeed before sighting the bird I was by no means sure that he might not be a Hairy. At length he left the woods, and flying straight to our camp alighted against one of its recently-erected log-walls where he spent several minutes, pecking tentatively here and there at the rough-barked trunks of spruce trees that were growing in the forest less than a month ago. I have never before known a Three-Toed Woodpecker to be thus attracted by a building of any kind.

1894, September 10.— A female Three-toed Woodpecker proclaimed her presence very noisily this morning, in evergreen woods at the back of our camp at Pine Point, by drumming and calling almost ceaselessly for upwards of fifteen minutes. Her drumming invariably took the form of a prolonged, even roll, essentially like that of the Downy Woodpecker, but louder. Every half minute or so she uttered eight or ten vocal calls in quick succession. Although always similar in form, they varied considerably in tone or expression, being at times very like the *kloc*-notes of the Arctic Three-toe, at others scarce distinguishable from the ordinary *tchick*-call of the Hairy Woodpecker, at still others more nearly like the similar, but feebler call of the Downy. All these utterances, with intermediate or intergrading ones, were given during a single calling period. The bird showed comparatively little white on the back, only a narrow, median line of it being visible there. She kept high up in spruce trees and I noticed nothing peculiar or especially characteristic in her attitudes or movements.

My first, and thus far only, nest of the Banded-backed Woodpecker was found on June 2, 1897, at Bottle Brook Pond. This secluded woodland pool was once, no doubt, a winding reach of the Megalloway River, but has long been separated from it by a narrow strip of heavily-wooded alluvial land overflowed occasionally, however, by spring freshets. Elsewhere the shores of the Pond are for the most part sufficiently low and flat to be rather frequently inundated and bordered by dead or

dying trees, some dry and bleached, others sodden and fungus encrusted, with here and there a green and thriving river maple, and everywhere over the more open spaces a profusion of rank, wiry grasses. On the eastern side, however, there are banks elevated above reach of the highest floods, where a dense, vigorous, living forest of spruces, balsams, and arbor vitaes, intermingled with a few deciduous trees, extends quite to the water's edge down a gently sloping and well-drained ridge. We had landed here to take a photograph of the Pond, and were about to push off in the boat again when one of my companions exclaimed, "Isn't that a Three-toed Woodpecker?" Looking upward I first saw a previously unnoticed, but freshly-drilled woodpecker's hole in a nearby trunk, and then a male *Picoides* ascending the stem of a tree beyond. We had only an imperfect view of him before he flew well back into the forest, where he presently began drumming much like, but less loudly than a Downy. Perhaps the wood on which he pounded lacked resonance, but when he changed his position, as happened twice within the next few minutes, the sound became no louder. After making it a dozen times or more, he gave a prolonged succession of vocal calls, closely similar to the rattling, Kingfisher-like ones uttered by Hairy Woodpeckers. I followed him for a considerable distance, without seeing him again, and then came back to watch the nest-hole, suspecting that he had slipped away from it unobserved, when we were taking the photograph, and trusting that he might presently return. Nor was such hope doomed to disappointment, for shortly after removing both boat and camera from the spot and concealing ourselves hard by among some evergreens, we heard the silky, rustling sound which the wings of most woodpeckers produce during brief, undulating flight through calm air, and an instant later a male *Picoides*, evidently the same bird that we had driven away not long before, alighted on the dead spruce-trunk a few feet below the hole. He was a truly beautiful creature, with clear yellow crown, the feathers of which were raised every now and then in a loose crest, contrasting finely with the black and white of his plumage elsewhere, and gleaming like a spot of sunlight against the dark tree-trunk or equally sombre background of evergreen foliage beyond. Having him now for the first time in plain view and scarce ten yards away, I saw, at once, by reason of his small size and white dorsal markings, he must be, not, as had hitherto been supposed, an Arctic Three-toed Woodpecker, but instead a representative of the much scarcer Banded-backed species, no nest of which had ever before come under my personal observation in Umbagog forests or elsewhere. To thus happen on one obviously

occupied, and hence likely to yield a set of the much coveted eggs was, of course, a peculiarly thrilling field-experience. After glancing keenly around for a moment, without apparently discovering anything that excited his apprehension, the bird clambered up to the hole and was about to enter it, when one of us moved sufficiently to attract his notice. Thereby informed of our near presence, and apparently with the deliberate purpose of leading us to think that the hole and whatever it might contain had ceased to interest him, he at once began pecking at the trunk immediately beneath it, prying off small scales of bark, and peering behind others as if in search of food. Then, very deliberately and with an air of perfect nonchalance, he gradually withdrew further and further from the hole and around to the back side of the trunk, whence he finally flew off through the trees, to be seen no more that day. If we did not misinterpret the significance of his behaviour on this occasion, it represented one of the clearest, best-acted, and most misleading ruses of the kind that I have ever known practised by any bird surprised at its nest and anxious to avert suspicion therefrom.

Our next visit to Bottle Brook Pond was made on June 9, when I spent most of the day at the Woodpecker's nest, taking six photographs of it, five of which show the male bird clinging to the trunk just below the hole. He was in it when we first reached the spot about *nine* A.M., and thereafter remained continuously within or near it until *three* P.M., although not infrequently flying back into the woods to distances of fifty or one hundred yards, where he drummed as if signalling to his mate, but without getting any response from her that reached our ears.

Rarely have I encountered a nesting bird of any kind so alert, suspicious, and keen of hearing as was this male *Picoides*. The sound of our voices or the least noise made by an oar or paddle, even when coming from fifty or more yards away, invariably caused him to show his head at the entrance hole. When not thus disturbed, he usually appeared at it every few minutes to look out and glance suspiciously in various directions. Yet he would not leave it until we came within a few paces of the stub and then, after drumming awhile, might return to, but not enter it while we were sitting on the ground close at hand, with the camera erected on its tripod and focussed on the hole. Thus I had excellent opportunities of photographing him, but they did not recur oftener than once every half hour, and the intervening periods of motionless waiting were rather trying, because of the stings inflicted by innumerable mosquitos and black flies.

On returning to the nest the bird usually alighted two feet or more

below the entrance hole, and after reaching it by a succession of upward hops, clung to its lower edge, now peeping in, next glancing down at us. The click of the camera shutter did not seem to alarm him, but he always took flight when I advanced to replace an exposed plate, and did not once reënter the nest while we remained near it. Nor did he again attempt to mislead us by pretending to seek food on the outer surface of the stub, probably realizing quite fully that the ruse had failed to accomplish its purpose on the former occasion, and hence was not worth repeating.

On flying back into the forest, the bird invariably took one or the other of two courses, and along each of these always alighted not only in the same tree but on precisely the same part of trunk or branch. One particular spot on the bole of a big spruce was oftenest resorted to. Here, he would spend ten or fifteen minutes at a time, pluming himself and watching us, before returning to the nest. His favorite drumming place was on a short, upright dry prong (a "lost" leading shoot) of a living spruce that stood on the shore of the pond, about twenty yards from the nest. He also drummed, but less frequently, on a tall naked stub equally near at hand, and in more distant trees beyond our view. His drum-calls varied in duration from five to ten seconds each, never exceeding or falling short of these limits, and usually lasting about one and a half to one and three quarter seconds. Thus given, at intervals too irregular to be worthy of record, they always began with two or three taps, slightly more disconnected than those which followed, although not sufficiently so to render the general effect other than that of an essentially smooth, even continuous roll, resembling that which Downy and Hairy Woodpeckers produce while drumming, but somewhat less loud. Nevertheless, it carried well, and under favoring conditions could be heard at least a quarter of a mile away. On the occasion to which I am now referring, the bird uttered no vocal call that reached our ears. The rustling sound made by his wing-beats as he flew from tree to tree, was audible at a considerable distance, and very noticeable when he passed us closely. It was exceedingly like the rustle of heavy silk fabric abruptly shaken.

I had previously been led to think that *Picoides americanus* is habitually a much less active and restless species than *P. arcticus*. This impression was confirmed by the behaviour of the male watched on the present occasion. He was, indeed, almost if not quite as lethargic and slow of movement as a Sapsucker, and similarly given to remaining perfectly motionless for minutes at a time, as if absorbed in reverie, just after alighting against a tree-trunk, while he seldom

climbed one otherwise than in the most deliberate and unhurried manner. Only when at or near the nest, and obviously concerned for its safety, did he display any real animation.

He was last photographed on the stub about 3 P.M. Hitherto our disturbing presence had failed to banish him long from the spot, but now his patience must have given out, or else the hour when he was accustomed to take his afternoon outing had arrived, for this time he flew afar off into the forest and drummed there at intervals for half an hour or more, almost beyond ear-shot from our station by the Pond. Shortly after he had ceased doing so, his mate appeared for the first time, flying close past us towards the stub, and alighting directly at the entrance to the nest, where I shot her almost immediately. The male did not return until half past four, when he also fell a victim to my gun. It was perhaps the most trying task of the kind that I have ever had to face, the killing of this pair of rare and interesting woodpeckers, but it had to be done in order to establish beyond all question the identification of the nest. To take the life of the male bird was especially distasteful, because he had been watched so long and familiarly. Indeed, when he went off into the forest for the last time, I could not help hoping devoutly never to set eyes on him again, much as he was coveted as a specimen.

The tree which these Woodpeckers had chosen for their nesting place was a tall, well-shaped Red Spruce, altogether lifeless, yet not long enough dead to have lost many of its lateral branches or any of its rough-scaled bark. The straight, evenly tapering trunk measured thirty-nine inches in circumference a foot above its base, and twenty-nine inches at the nest, which was entered by a hole facing westward, at a height above the ground of exactly ten feet and eleven inches. Although this aperture looked evenly round when viewed from a distance, it was not really so externally, for the birds, following a practice common to nearly if not quite all the members of their tribe, had chiselled off its lower edges to form a convenient foothold, thereby giving it a vertical diameter of two inches, whereas its greatest lateral breadth was a quarter of an inch less than that. Sloping gently upwards, the foothold-platform extended inward for a distance somewhat exceeding an inch, to where the hole became perfectly circular and no more than one inch and one quarter across. Just beyond this point and approximately two inches from the outer surface of the trunk, the hole opened rather abruptly into the nest-chamber proper, an irregular gourd-shaped cavity about ten inches in depth by four and one half inches in width, midway between the bottom and top, where it was broader than

elsewhere. Its walls were rough and seamy, but this was obviously not the fault of the birds for the heartwood was everywhere too fibrous and stringy to be chiselled smoothly, although soft enough to be easily worked. Evidently it had been pried off mostly in long, narrow shreds. The bottom of the cavity was lined with a thick spongy mat of these, but there were no hard chips such as are commonly found in woodpeckers' nests.

All this was not ascertained, of course, until the nesting burrow had been laid open, which was accomplished without damage to its contents or much disfigurement of its outer walls, by sawing off the trunk, first above and next below it, and then making a smooth cross-cut directly through the section just beneath the entrance hole, after carefully lowering it to earth. An anxious moment followed when the top, thus freed, was lifted off. We had hoped for a full set of eggs, but feared that they might be far advanced in incubation, because of the lateness of the season. There were only two, however, and these quite fresh. On skinning and dissecting the female, I found that she would have laid but two more, one of which, enclosed in shell not fully hardened and fractured by a shot, was about halfway down the oviduct, whereas the other, a globular sack of skinny tissue filled merely with yolk, and no bigger than a Chipping Sparrow's egg, still remained in her ovary.

Under date of December 20, 1914, John E. Thayer writes me that he found his "nest of the American Three-toed Woodpecker near the shore of B. Pond, June 9, 1898, in an old dead spruce-stump, 20 feet from the ground. The bird flushed from the nest when the stub was struck with a stick. The male bird was not seen." Mr. Thayer adds that the eggs are now in his museum in Lancaster and that he has never since met with an American Three-toed Woodpecker at B. Pond, although he goes there every year.

The first nest of *Picoides americanus* known to have been taken anywhere within the United States was found by Dr. C. Hart Merriam and Mr. C. L. Bagg on June 4, 1878, in the Adirondack region of New York, near the border-line between Lewis and Herkimer Counties. It was "about eight feet from the ground in a spruce tree" and contained four "nearly fresh eggs" (Bulletin Nuttall Ornithological Club, 1878, **3**, p. 200). Afterwards — in June 1883 — "numerous nests" were found "in the Adirondacks," most of them among "flooded timber bordering the inlet of Seventh Lake, Fulton Chain. They varied from 5 to 12 feet in height above the water, and were in spruce, tamarack, pine, balsam, and cedar trees. Two sets of four eggs each were

taken on June 8, apparently by Dr. Merriam (Bendire, Life Histories N.A. Birds, Part II, 1895, p. 78, 79.)

Dr. Merriam's experience in the Adirondacks, together with Mr. Thayer's and mine in the Umbagog Region, indicates that *Picoides americanus* usually lays only four eggs; that they are seldom all deposited before the 4th or 5th of June; that the nest is ordinarily placed lower than that of most other woodpeckers. One might also infer that the bird is especially given to breeding very near, if not over, water, but we must not forget that throughout the wild and rugged country which it inhabits, lakes and rivers furnish the pathways most followed by men, and that along their shores birds' nests of almost every kind have been oftener sought, and much more commonly found, than in the depths of the forest. Moreover, Dr. Merriam once informed me, if I am not mistaken in my recollection, that the abundant presence of this and other woodpeckers at the Fulton lakes in 1883, was exceptional, and evidently due to the fact that innumerable trees, killed years before by the artificial raising of the water, had reached the precise stage of decay which made them most attractive to the woodpeckers, both for feeding and nesting purposes. When, as formerly, similar conditions existed about the shores of Lake Umbagog, woodpeckers of various kinds bred there in truly remarkable numbers, but *Picoides americanus* was unknown then and since to ever frequent inundated forests of leafless stubs at any season, although *P. arcticus* occasionally nested in them.

The eggs of *Picoides americanus*, taken by me at Bottle Brook Pond in June, 1897, measure respectively 89 x 72 and 89 x 70. They are rounded ovate in shape and pure white in colour with somewhat less pronounced external polish than that shown by the eggs of most other woodpeckers found in New England.

Sphyrapicus varius varius (Linné)

YELLOW-BELLIED SAPSUCKER

Abundant summer resident
May 13–October 2

The Sapsucker is the only representative of its family, except the Flicker and the Red-headed Woodpecker, which invariably departs from the Umbagog Region in autumn to pass the entire winter further southward. Returning in early spring, before the waters of the Lake

are freed from ice, or many northern slopes quite bare of snow, it is more numerously represented in summer than any other woodpecker, and also much more generally distributed, occurring practically everywhere, save on the crests of the high mountain-ridges, and by no means absenting itself altogether from farming and burnt lands almost devoid of arboreal vegetation. Although sufficiently indifferent to conditions of environment to seem equally at home among widespread and densely-crowded trees, whether evergreen or deciduous, and shading swampy or well-drained ground, it evidently prefers to dwell in mixed forests well supplied with heavy timber. Within these it ranges widely, but is oftenest to be found about the edges of openings and the neighborhood of old logging camps, where scattered and branchless stubs tower high above thickets of Striped and Mountain Maple, Alder, Red Cherry, and other lowly trees or shrubs whose smooth barked stems yield sustenance especially grateful to the bird, as its familiar name indicates. It continues to frequent all such places quite as commonly and regularly as of yore, but is now seen much less often and numerously close about the Lake than it was formerly, when stub-forests still abounded there. One could not then go far into or close past these in early summer without seeing very many Sapsuckers, especially about the outlet of the Lake and the mouth of Cambridge River, or around certain of the large coves, where crowded ranks of lifeless trees, in various stages of decay, stretched for miles along flooded shores backed by higher ground covered with verdant and unbroken forest. Nor was there scarce any stub-encircled nook too small and remote to harbour at least a breeding pair of Sapsuckers. If not the most abundant and ubiquitous of all stub-nesting birds, they were certainly the most so of all woodpeckers. Their handsome plumage rendered them rather conspicuous amid such surroundings, and they were also accustomed to proclaim their numerous presence by means of frequent and far-reaching signal-calls, some vocal; others made by hammering with their bills on resonant wood; all sufficiently unlike those of other woodpeckers to serve as a ready means of identifying unseen birds. Those seen were likely to be flitting from stub to stub, or working at their holes, or perhaps launching out into the air after flying insects if the season were well advanced. Most of their food, however, was of different character and sought in more or less distant living forest, to and from which they were constantly journeying on wing. Being remarkably fearless and confiding, they seldom took much notice of our boat, as it was paddled slowly through their flooded haunts, and would not unfrequently fly directly to their nests, when we were close at hand

and in open view. Had it been otherwise, holes containing sets of eggs would have been most difficult to locate, because of the innumerable tenantless ones with which almost every stub was simply riddled. Some of these had doubtless cradled broods of young Sapsuckers in former years. Others were left unfinished, perhaps because the birds had encountered knots too tough to penetrate or heart-wood too soft and crumbling. Most of the occupied nests were in weathered and barkless ask or maple-stubs not much softened by decay, or else in Canoe-Birch trunks still retaining their white bark and comparatively hard within. Occasionally, but not often, a bird would excavate a chamber for its eggs in the punky heart of a living White Maple, to reach which it had to drill for two inches or more through an outer shell of perfectly sound sap-wood.

Sometimes we found a hole containing eggs or young which evidently had been made, if not also laid in, a year or more before, but as a rule Sapsuckers dig a fresh one every spring. It was interesting to watch a pair of them thus employed. Both sexes shared about equally in the strenuous work, exchanging places at rather short intervals. The bird thus released usually remained just below the hole until its turn came again, occasionally uttering a subdued cry as if to encourage its toiling mate. Thus would they labour almost ceaselessly, day after day, with untiring energy and persistence. As the hole deepened, the task became more and more irksome, partly because of evergrowing trouble connected with the removal of loosened chips and other debris, also because of increasingly cramped and ill-ventilated conditions within. The chips accumulated so rapidly that they often had to be brought up by the mouthful every two or three minutes. Sometimes the Sapsucker appeared at the entrance without any and evidently merely for a breath of fresh air, perhaps remaining there for minutes at a time, with half-opened bill and palpitating throat, especially if the weather were very warm and the stub exposed to sunlight. From start to finish the work lasted at least a full week, and often longer than that, the time varying considerably with the relative hardness or softness of the wood. When completed the nest-chamber was usually shaped like a much elongated gourd, and from fourteen to sixteen inches deep by at least five across at the widest point. Its inner walls were likely to be evenly curved and very smoothly chiselled, but the hole that led into it often lacked symmetry, and had rather jagged edges near the outer surface of the trunk. When provided with a sloping foothold, commonly but not always present, its height might exceed its width externally by a full quarter of an inch. Only a little further in it in-

variably became almost perfectly circular, and no more than an inch and a half in diameter. Being thus narrow and more or less rough-edged also, it failed to afford convenient access for the bulky-bodied birds. Indeed they could not go either in or out without writhing and struggling rather violently, perhaps for seconds at a time. Doubtless they preferred to have it so, realizing that an ampler and more smoothly-finished doorway might admit undesirable prowling visitors, feathered or furred. Obviously no thieving Crow or Jay could hope to squeeze through it. Nor were squirrels, mice, weasels, sables, or other forest-roaming and more or less arboreal mammals likely to trouble or even notice it, especially when, as was oftenest the case, the tree selected by the birds stood several rods from the nearest dry land, surrounded by water a foot or more in depth. That woodpeckers' nests thus placed are comparatively free from dangers that constantly threaten those of other birds is further evidenced by the fact that I have never known one of them to be despoiled of eggs or young by any predatory creature save man alone. Even to him they are often inaccessible, at least by climbing, because in stubs too frail and tottering to support his additional weight. These may be felled, of course, but not with much chance of securing unbroken eggs. Yet three were actually thus obtained by us, early in June, 1872, although the trunk containing them was upwards of forty feet tall, and the nest almost at the top. As it crashed down into the Lake there seemed no possibility that anything fragile could remain intact within, but when, after totally submerging itself for a moment, it reappeared and floated on the surface of the water, all three eggs, there were no more, proved, as has been said, to be without crack or blemish, and were duly preserved as cabinet specimens. They must have owed their escape from injury to a rather unusual combination of favoring conditions, for we never again acquired similar spoils in the same way, although making repeated attempts to do so. Occasionally a single egg was recovered unharmed, but much oftener all in the nest were hopelessly smashed; sometimes we found only small bits of their glossy white shells intermingled with the wreckage of a trunk, so weakened by decay that it failed to withstand the shock of a fall into fairly deep water.

Oddly enough it was by no means unusual to find *several* newly-finished and essentially-similar nest-cavities of the Sapsucker in the same stub. Once we cut into four, none of which was less spacious and fresh looking than the rest, or in any respect apparently different from a fifth containing eggs. Those whose weathered aspect, within as well as without, attested that they had been excavated in former years,

were often still more numerous. Altogether there might be as many as a dozen or fifteen, old and new, besides unfinished ones. The entrance holes were commonly all on the same side of the trunk and rather evenly spaced, one above the other, but sometimes they pierced it on every side and at irregular intervals. No more than one of the burrows included in such an aggregation ever seemed to be laid in, or even entered, by woodpeckers of any kind during the same breeding season, although Tree Swallows nested frequently and Bluebirds occasionally, in those otherwise untenanted. Why the Sapsuckers should take the trouble to dig so many, of which they make no obvious use, is difficult to understand. We sometimes thought they might be intended to serve as roosting places for the young, after the latter had left the nest, but no definite evidence to support such an inference was ever obtained. Still more surprising and inexplicable is the fact that after completing a deeply-excavated and beautifully-finished nesting cavity that has cost them infinite labour, a pair of Sapsuckers will sometimes abandon it for no conceivable reason, and presently lay their eggs in an ancient and perhaps also somewhat dilapidated one in the same stub. I have known this to happen more than once about the shores of Lake Umbagog.

The stub-frequenting Sapsuckers often absented themselves almost wholly from the Lake-shores, to roam about in pairs through more or less distant forests for days in succession, immediately after putting the last finishing touches to their nests. Such indulgence in hard-earned recreation was not always possible, however, for most of them began laying by May 20 in ordinary seasons, and some nests were scarce ready for occupancy then, or indeed until somewhat later. The eggs in a completed set might be no more than five or as many as seven, but were oftenest six. Clustered in no especial order of arrangement on a bed of chips and other woody debris which had been left by the birds, no doubt intentionally, at the bottom of the hole, they looked not unlike eggs of the Purple Martin, being of about the same size and similarly creamy white in colour, at least when fresh and unblown; nor were they likely then to have much, if any, of the pronounced surface-polish so characteristic of woodpeckers' eggs generally. It was not always absent, however, from Sapsuckers' eggs, especially those which had been long incubated or thoroughly blown and washed. They varied considerably in shape, some being evenly elliptical, others rounder or more elongated. Normal specimens usually measured about .85 in length by .60 in maximum breadth.

Of course we did not always rob or otherwise molest nests of the Sapsucker found about Lake Umbagog. Many, indeed, were spared, at

least after the first few seasons, and countless others must have escaped our notice. Some were watched closely, perhaps for hours at a time, especially during the later years. Such observation revealed much of interest relating to the family-life of these attractive birds. Very admirable they seemed, not only because of their handsome plumage, but also by reason of their mutual helpfulness and self-sacrificing devotion to one another and to their young. Every duty connected directly or indirectly with that of procreation was shared as fairly as possible. They undertook it cheerfully and attended to it methodically, without nervous fuss or showy pretence such as may be evinced by the behaviour of other nesting birds, especially the males, yet dealt with it so efficiently that it was sure to be no less promptly than thoroughly performed. Of all such tasks that of incubating the eggs was probably the most exacting and certainly the most confining. Both birds took equal part in this, changing places about once every half hour, when the one that had been absent would alight just below the entrance hole and utter a subdued *yew-ick* twice or thrice repeated, and not unlike the Flicker's familiar call. On hearing this the one within the trunk would quickly appear to greet and be greeted by its mate, with welcoming gestures and tender cries unmistakably expressive of affection and no less touching than pleasing to witness or listen to. Sometimes the Sapsuckers indulged in them elsewhere than close about their nests, usually just before or after intervals of separation. At the nest they were seldom continued for more than half a minute, after which the newly-arrived bird would enter the hole to brood the eggs. The other might then fly off towards the nearest verdant forest in quest of food, but was rather more likely to cling motionless and statuesque at the lower edge of the entrance hole, gazing fixedly in, as if absorbed in reverie, or perhaps with some hope of getting a glimpse of the sitting mate or eggs which, however, could not possibly have been seen from such a view point. Thus might the bird remain pensive and inert for many minutes at a time, if not throughout a still larger part of its comparatively brief leave of absence. Despite such apparent mental abstraction it may really have been performing the duties of a sentry all the while, for it rarely failed to take note of our close approach or to inform its mate of this by uttering warning cries. Sometimes it flew from afar straight to the hole, before sounding them there, or was summoned thither from still greater distances by similar outcry proceeding from its mate who, while still within or near the nest, had somehow become aware of our presence in the neighborhood. After this both birds commonly flew to and fro, calling more or less anxiously, as long

as we lingered near. The character and amount of the solicitude they displayed on such occasions varied considerably with different individuals or pairs. Very little of it was shown by some who, indeed, might even watch in perfect silence and with seeming unconcern, the rifling of their nests by ardent young egg-collectors, whereas others protested such intrusion with incessant outcry, close encircling flights about him who undertook it, perhaps even alighting for a moment on his head or back.

Adult Sapsuckers, attending to the needs of young still in the nest, evidently had little or no time left for anything else. Just how and on what they feed them during the first week or so we failed to ascertain. Later in the season the young were liberally supplied with winged insects of various kinds, chiefly rather large *Diptera*. The parent birds sought and obtained these in precisely the same manner as that characteristic of such true flycatchers as the Olive-sided or the Kingbird, and with no less dexterity, launching out into mid-air after them from the very topmost twig or prong of a tall dead tree. Some of these forays were made almost straight upward, others on a more nearly level plane or perhaps inclining downward, when they might extend to a distance of one hundred yards or more, before the bird secured its prey and turned rapidly back. After filling its throat and mouth with insects thus captured, they sometimes also protruded from its bill, the Sapsucker would take them to its nest, where they were doubtless promptly swallowed by the hungry young, although that was never actually witnessed by any of us.

The drumming call of the Sapsucker is unlike that of any other Woodpecker found in New England. Adult birds of both sexes employ it freely, chiefly, I believe, for the purpose of signalling to one another, although it may also serve to express sexual ardour or excitement, being oftenest heard during the breeding season. It resembles the sound of emphatic tapping with an iron-knocker on a metal-plate. The taps vary in number from only three or four to as many as ten or a dozen and their spacing is also variable. If there be ten or more, the first five or six are given rapidly and evenly, the remaining ones in couples or singly. A common form of sequence and arrangement is as follows:— *Rat-tat-tat-tat-tat-tat; tat-tat; tat.* These sounds carry surprisingly far through moist, windless air.

The most frequent vocal utterance, common to birds of both sexes and all ages at every season, is a subdued nasal or mewing cry which may remind one by turns of the Blue Jay's scream or of the equally familiar plaint of the Catbird, yet is not quite similar to either. Hear-

ing it there for the first time, a city-bred guest at our camp on Pine Point once exclaimed "how very like the mewing of a cat" — and could scarce be convinced that it came from a Woodpecker. It has a peevish quality, suggestive of chronic irritability of temper on the part of its author who, however, gives no other indication of possessing so undesirable an attribute.

Another and much more pleasing call is a clear, resonant *cleur*, repeated twice or thrice in quick succession. We used to hear it often enough in the stub-forests about the Lake during calm mornings in May and June, but rarely at any other season. It is, I think, characteristic of, if not peculiar to, adult birds.

Mated Sapsuckers sometimes utter an oft-repeated *yew-ick* call very like that of the Flicker, and similarly used chiefly in springtime, especially during courtship. Hence it is probably not without amorous signification, although perhaps also indicative of mere exuberance of spirits, for young birds occasionally make use of it when sporting together in autumn. Having heard essentially the same sounds proceeding from Pileated and Hairy Woodpeckers correspondingly employed, I should not be surprised to learn that still other species of *Picidae* produce them more or less often, but no other has yet given utterance to anything of the kind that has reached my ears. With the Sapsucker they are somewhat variable, both in form and quality. Thus, according to my notes, the "courting calls" of a bird listened to on June 14, 1897, were monosyllabic and sounded like "*wick-wick-wick-wick-wick-wick*," uttered in gutteral tones. Another entry, relating to a pair of Sapsuckers watched on May 28, 1896, at their nest, which then contained five slightly-incubated eggs, states that whenever one came to the entrance hole to replace the other, they exchanged "low, murmuring *wher-wher* calls, something like those of muskrats."

Some of the following extracts from my Umbagog journals describe, more fully, observations on which certain of the foregoing generalizations were based; others relate to matters not as yet thus mentioned.

1873, August 11.— Sapsuckers are either heedlessly confiding or, like many other birds, sufficiently aware of the efficacy of protective colouring to depend on it very frequently when desirous of escaping observation. Flatting themselves against tree-trunks and keeping perfectly motionless, they often permit me to approach within a few feet. I have even known one to remain thus after being shot at and missed.

1876, June 1.— A female Sapsucker, shot to-day by my friend William Stone, has a few red feathers in the otherwise white plumage of its throat—an unusual adornment for a bird of that sex.

1876, JUNE 2.— A male Sapsucker, brought down wing-tipped by a gunshot wound, uttered, when seized, a continuous screaming outcry loud enough to have been heard a quarter of a mile away, and defended himself with admirable spirit, striking at my hand so forcibly with his bill as almost to draw blood. All the while he kept the crimson feathers of his crown erected in a conspicuous crest.

1876, JUNE 3.— Skirting the shores of the Lake in a boat to-day, we found and examined three nests of the Sapsucker. One in a tall stub surrounded by water eight or ten feet in depth, was entered some thirty feet above this by a hole one and a half inches in diameter, that opened into a chamber twelve and one half inches deep and about five inches across in the widest part. My guide cut down the tree, fortunately without breaking any of the eggs, which proved to be three in number and quite fresh. The parent birds were noisy and very tame. The male had a red nuchal crescent, not often present in New England specimens of *Sphyrapicus*. Another nest contained six freshly-laid eggs. Its entrance hole was about fifteen feet above water that surrounded the stub, that of a red oak standing on a rocky point. The nest-chamber proper was not more than twelve inches deep. Our third nest was in an exceedingly tall stub, at least fifty feet above water at the base. As it seemed no less unsafe than difficult to reach by climbing, we used the axe again, but this time without profiting much thereby, for only the shells of two hopelessly smashed eggs were obtained. The entrance to this nest measured one and five eighths inches across, its inner chamber sixteen inches in depth. The wood about it had been much softened by decay, whereas that about the other two cavities was hard and dry. The Red Oak was pierced by only one Sapsucker's hole. Most of the stubs tenanted by breeding Sapsuckers have no less than six or eight of their completed nest-chambers, and perhaps half of these are quite as fresh looking as those which contain eggs or young; yet the birds make no obvious use of more than one, or permit others of their kind to do so.

1876, JUNE 8.— By cutting into four nests of the Sapsucker, found along Lake- and river-shores to-day, we ascertained that they contained respectively, five eggs slightly incubated; seven perfectly fresh; five with small embryos; six almost fresh. Referred to in the same order, the first was about eight feet above water, in a live poplar, the hole entered where a branch had rotted out, penetrating thence horizontally into the trunk for a distance of about three inches, before descending some twelve inches to the bottom of the wider space wherein lay the eggs; the second was no higher up than the first, but in a dead birch; the third not less than thirty feet above water, in a rotten birch-stub; the fourth about fifteen feet above water and also in a birch. The parent birds remained silent, for the most part, and seemed comparatively unconcerned, when we were rifling their nests.

1876, JUNE 15.— Sapsuckers have already begun to catch flying insects on wing. I saw one engaged in their pursuit to-day.

1876, JUNE 17.— While passing a Sapsucker's nest about fifteen feet above the ground, in a birch that stands on the banks of Cambridge River, we heard

unseen young chattering within. Their calling was like that of most young woodpeckers.

1876, JUNE 19.— Almost, if not quite all, the young Sapsuckers are now hatched. Those in a nest found yesterday drew my attention to it by their loud clamour. The father bird, also, was within, perhaps engaged in feeding them at the time. When I rapped at the base of the tree, a small, half-dead, Red Maple, still retaining a few leafy branches and surrounded by flood-water, he showed his crimson-fronted head at the entrance hole, less than ten feet above me, yet remained therein apparently unperturbed by subsequent resounding blows struck with the butt of an oar on the hollow-hearted trunk.

1880, MAY 21.— Sapsuckers do not often begin laying earlier than this, but we took six of their eggs from a nest found to-day in an elm-stub on the Lake-shore. It was about thirty feet above the ground and must have been excavated a year or more ago for the inner, as well as the outer, walls were everywhere blackened by prolonged exposure to weather action of various kinds. Why this musty old hole should have been preferred to several others in the same stub, which were much fresher looking, not less perfectly finished, and presumably made by the same pair of birds, yet put to no obvious use by these or any others, is difficult to comprehend. The trunk was also pierced near its top by an apparently long since abandoned nest-hole of the Pileated Woodpecker.

1880, MAY 27.— Counted no less than ten finished holes of the Sapsucker in a birch-stub, but only one contained eggs, six in number and fresh.

1880, MAY 29.— On the 25th of the present month we took four fresh eggs of the Sapsucker from an old and blackened hole about twenty feet above the ground, in a dead ash. To-day both birds were seen entering another hole higher up in the same trunk. Although I do not remember noticing it on the former occasion, it may have been there then. (This possibility has suggested what now seems to me a probability; viz., that the supernumerary nest-chambers which Sapsuckers so often chisel out with infinite labour may thus be made ready with prudent forethought to serve in precisely such an emergency as that just referred to. If so, the time devoted to their preparation is well spent, for the birds are thereby enabled to lay a second set of eggs, after losing the first, without waiting to excavate another nest, a task that can scarce fail to impress them as peculiarly trying and vexatious, if, perforce, undertaken when the breeding season has fairly begun. Nevertheless, it must be occasionally performed, for the wise precaution, (if really such), of guarding against its necessity, by providing extra holes kept in readiness for immediate use, is by no means universal among Sapsuckers, although with them the rule rather than the exception. If woodpeckers of any other species be correspondingly provident, the fact remains unknown to me).

1896, MAY 28.— On the crest of a ridge covered with hard-wood forest, at a distance of two hundred or more yards from the nearest shore of the Lake, we found and cut into a Sapsucker's nest containing five slightly-incubated eggs.

It was in a stubby, upright, dead prong of an otherwise live and vigorous maple, about forty feet above the ground.

1888, SEPTEMBER 10.— Sapsuckers are habitually inert and sluggish birds, far more so, indeed, than woodpeckers of any other species found in New England. One that I watched continuously for more than an hour to-day remained all the while on the trunk of a maple, and moved up it only some three or four feet. Nor did he otherwise exert himself, save by tapping the bark lightly and very deliberately every now and then, not seemingly with hope of thereby obtaining food, but rather as if so preoccupied by dreamy thought as to be unconscious alike of performing the action and of its obvious futility.

1896, SEPTEMBER 18.— The trunk of a living and rather large Yellow Birch, standing on the banks of the Megalloway, in front of "Camp — in the — Meadows," where we are to spend the night, is ringed in places with sap-wells, drilled by Yellow-bellied Woodpeckers. At least two of these birds, (both young ones), have been coming to the tree at frequent intervals during the day to drink the sap. Twice I saw them meet there, and on each occasion a surprisingly prolonged and desperate combat ensued. Without any preliminary threatening or fencing, they came together and clinched with their bills at once, to descend fluttering to the ground, where they fought ceaselessly for two or three minutes, rolling over and over. Once they separated, finally, of their own accord, and once were parted by a guide who walked to the spot and *kicked at them*, just missing them. I failed to see that they ever struck or pecked at one another. It was simply a bulldog-like grip and tussle from first to last, resulting in no serious injury of any consequence to either bird.

Writing about *Sphyrapicus varius* var. *nuchalis* in 1874, Dr. Brewer reported that "two specimens of this race have been taken in New England — one in New Hampshire by Mr. William Brewster, the other in Cambridge by Mr. Henshaw." (Baird, Brewer, and Ridgway. History of North American Birds, 1872, **2**, p.543). The birds he mentioned were referred to *nuchalis*, because they had a crecentic band of red on the nape. Others similarly adorned have since been killed in various parts of New England. I have met with them repeatedly at Lake Umbagog. They are generally regarded as aberrant or exceptionally high coloured examples of the eastern Sapsucker, for all that have been critically examined of late are said to differ in certain essential respects from the more western forms of that species, although resembling these in respect to the possession of a red nuchal band.

Ceophloeus pileatus abieticola (Bangs)

Northern Pileated Woodpecker. Log Cock. Woodcock

Not uncommon permanent resident

Few North American birds are more strictly confined to wilderness places or seem more impressively characteristic of them than the Pileated Woodpecker. Throughout its general and very wide-spread range in North America, it shuns all treeless or sparsely-wooded country, especially that long settled or much frequented by man, and is unlikely to occur regularly anywhere, save in dense forests of generous extent. Those most primitive in character and abundantly supplied with large trees suit it best, but where they no longer exist it may frequent second growth woods, not too restricted or immature to furnish congenial food and shelter. Possessing such tastes and requirements, together with hardihood that renders it comparatively indifferent to extremes of cold as well as heat, the splendid Log Cock naturally finds unsettled and heavily-timbered parts of Maine and New Hampshire almost, if not quite, as attractive as those of states lying farther south, although it is more generally distributed and numerously represented in Florida and the Carolinas than it has ever been anywhere in New England within my time. It inhabits the Umbagog Region at every season, in numbers which vary surprisingly little from month to month or from year to year. As far as I have been able to ascertain by personal observation, and by questioning local guides or hunters, it is no less common or ubiquitous there now than it was half a century or more ago. That it should thus have persisted in haunts long since devastated by lumbermen, and because of this, largely abandoned by other forest-loving birds, perhaps no more timid or dependent on primitive conditions than itself, is rather surprising. Unlike many of the others, it seems content to dwell in ancient forests denuded of evergreen trees, provided large deciduous ones, both living and dead, continue to abound, as is still the case about Lake Umbagog. What becomes of all the young Log Cocks that must be reared there annually is somewhat mysterious. They may be encountered not uncommonly in autumn, to be sure, yet the forest seems to harbour no more Pileated Woodpeckers then than during spring or early summer. In other words, annual reproduction apparently serves neither more nor less than to keep the numerical status of the species always about the same, at least within the Umbagog Region. If therefrom there be ever any-

thing in the nature of overflow or of seasonal migration, it has escaped my notice, as well as that of all the local hunters whom I have questioned concerning the matter. It would be interesting to know how many Log Cocks there are or ever have been at any one time within ten or fifteen miles of the Lake. The total number probably never exceeds two or three hundred, and perhaps falls considerably short of that. Yet the birds may be seen or heard almost everywhere in the forest, being accustomed to visit every part of it more or less often. Of all feathered and furred creatures that frequent it they are, moreover, perhaps the most likely to attract human observation; partly because so indifferent to this that they rarely take pains to elude it, save perhaps by keeping beyond gun-range; also because of their large size, conspicuous colouring, and loud voices. Some individuals wander far and ceaselessly, particularly in autumn and winter over forest-clad slopes and ridges, but not often quite to the crests of any of the higher mountains, I am told. Others, more sedentary of habit, may remain for days, or even weeks, in the same locality, especially if it be heavily timbered and near the shores of Lake or river, spending much of their time on or near the ground, hammering at prostrate logs or moss-clad stumps. When thus employed they are not difficult to approach closely, even in comparatively open places. By advancing stealthily and without noise, one may often get within a few yards of them. Nor are they likely on other occasions to prove much warier than Flickers, despite all that has been written or said to the contrary. Such, at least, has been my general experience with Log Cocks in New England. Further to the southward I have sometimes found them almost as fearless and confiding as Downy Woodpeckers.

Although Pileated Woodpeckers are much given to haunting outskirts of the forest, especially where it borders on stub-fringed lake or river-shores or on stump-dotted clearings remote from human habitations, they seldom leave it long for any purpose, and still more rarely venture far out into open spaces, except when crossing broad expanses of the Lake or treeless farming country about its southern end, as happens not infrequently. On such occasions they keep at least two or three hundred feet above water or land, and are often mistaken for Crows. To these, indeed, they bear a rather close resemblance when thus seen, not only in respect to apparent size, outlines, and general colouring, but also because of equally direct and level flight, correspondingly maintained by ceaseless, measured wing-strokes and unaccompanied throughout by any of the deep, undulating curves, performed with momentarily-folded pinions, which, however, are some-

times no less characteristic of these than of most other woodpeckers, when the birds are flying low from tree to tree or across narrow openings. At the termination of elevated and protracted flight such as that just described, the Log Cock may swoop abruptly down into the tree-tops, with tight-closed wings, or with them wide-spread and stiffly-held may descend more gently and deviously, perhaps by hawk-like circling. In either case it is very likely to indulge in loud outcry soon after alighting, and scarce less likely to be answered promptly by another of its kind that has preceded or followed, or perhaps accompanied it, over open lake or field. For at every season the big birds commonly roam in pairs, yet rather far apart, although not beyond ear-shot of one another. Whenever thus separated, they keep each other informed of their respective whereabouts by frequent interchange of shouting calls closely resembling those of the Flicker, but unlike them uttered daily, if not hourly, throughout the year, instead of chiefly in spring-time, as with the Flicker. Although exceedingly like that of *Colaptes* in general effect, this shouting, or laughing outcry of the Log Cock carries further and ends more abruptly, besides being rather briefer. Such, at least, is its normal character, but it varies somewhat with different birds or with the same individuals at different times. Sometimes it runs without pause into a prolonged series of louder, more disconnected, and cackling notes which, however, are heard less often in close association with it than independently. Delivered slowly, and perhaps at impressively wide intervals, yet otherwise ceaselessly, they may continue to issue from the depths of the forest for several successive minutes. They are uttered oftenest by solitary Log Cocks, apparently merely as expressions of loud-voiced and loquacious soliloquy, but perhaps, also, every now and then, to signal distant comrades. It is by no means uncommon to meet with single birds who seem to shun, rather than seek, close companionship with all others of their race, at least in autumn. Sometimes as many as three or four will be found together or in the same immediate neighborhood, but that does not happen often or perhaps ever, save with young only a few months from the nest, while these are accustomed to scatter widely as soon as they become able to shift for themselves.

Strange as it may appear, no eggs of the Pileated Woodpecker have ever, to my knowledge, been taken in the Umbagog Region. We used to seek for them persistently, season after season, often with the assistance of keen-eyed native backwoodsmen, but invariably without success, although nests which failed for one or another reason to yield any of them, were found now and then, usually in large, dead, hard-

wood trees, standing well within the confines of living forest, rarely anywhere among the stubs that fringed the shores of the Lake.

Some of these experiences, together with miscellaneous observations relating to the habits and behaviour of the birds, are described with more or less detail in the following field-notes:—

1872, June 6.— At the edge of woodland just behind the Lake House, my attention was drawn to a male Log Cock by his loud, ringing laughter. It resembled that of *Colaptes*, but the notes were louder and shriller, and continued without pause for almost a minute, until I wondered how the bird could get breath. He permitted me to approach him rather closely, but whenever I made any abrupt movement would dodge behind the tree-trunk, almost immediately showing his head again, however, and presently sidling back into full view.

1874, July 28.— A Pileated Woodpecker, shot yesterday, clung by its claws after death to the top of a tall stub, and has not yet fallen.

1876, May 29.— Although the laughing calls of the Log Cock closely resemble that of the Flicker, they are somewhat louder and shriller, and always terminate more abruptly in a falling tremulo, by means of which they may certainly be distinguished from those of *Colaptes*.

1876, June 2.— An old stub that I examined to-day had been dug into by Log Cocks to the very core. One excavation made by them was six feet in vertical length by four inches across.

1876, June 20.— Hearing a Log Cock calling in a narrow belt of trees bordering on the Lake, I landed and shot the bird, approaching it without difficulty across almost perfectly open ground. It repeated the usual laughing outcry as it fell merely wounded from the tree. Although a female, in full and very handsome nuptial plumage, it had laid no eggs this year nor, if permitted to live, would have done so until considerably later, as I subsequently learned by dissection. This and other evidence obtained of late induces me to think that few, if any, Log Cocks are breeding hereabouts as yet. I notice that they climb tree-trunks in much the same manner as that characteristic of smaller Woodpeckers, but that their flight is less likely to be undulating, and often performed on a level plane by slow, continuous flapping, when the bird looks not unlike a Crow, and cleaves the air no faster than a heron.

1879, June 17.— An adult male Pileated Woodpecker, met with today in woods near the Lake House, was exceedingly tame and, indeed, seemed to regard me without any fear whatever. His glowing red crest showed very conspicuously.

1880, May 21.— Judging by the size of its entrance hole as well as inner chamber, an old and perhaps long since abandoned nest-cavity of a woodpecker found and cut into to-day, must once have belonged to a Log Cock. It was in the top of a tall elm-stub standing in swampy forest not far back from the shores of the Lake near Great Island.

1880, May 31.— I have just witnessed what seemed to be an act of courtship on the part of a pair of Log Cocks. It closely resembled that characteristic of

the Flicker, and took place only a few feet above the ground among fallen trees, at the edge of forest bordering on the Lake. Bowing and scraping the male kept hopping close about the female, uttering subdued *yew-ick*, *yew-ick* calls very like that of *Colaptes*. We see one or more Pileated Woodpeckers daily. They are much given to hammering at prostrate and crumbling logs. While thus engaged they often stand on, or move over, the surface of the ground.

1881, May 27.— An adult female Log Cock shot to-day had laid eggs, and was already incubating them. We looked for her nest, but failed to find it. She had hazel-red irides. Her skin was very tough and difficult to get off.

1882, October 11.— I had an interesting, if painful, experience to-day with three young Pileated Woodpeckers. When first seen they were very near together in a swampy thicket, pounding noisily at some prostrate logs, and took little apparent notice of me, until I fired at one, killing it instantly. Disturbed by the report of the gun, the remaining two flew perhaps twenty rods to another spot, similarly cumbered with fallen tree-trunks, where they were again easily approached. A second shot unfortunately wounded, without disabling, its intended victim who, after flying a considerable distance, was lost to sight in dense forest. While searching for it there with slight hope of ever seeing it again, I heard a low grunting or growling noise that seemed to come from above. Glancing upward I at once perceived the wounded Log Cock clinging to the stem of a Brown Ash, and close beside it an uninjured one, no doubt the third member of the trio. The latter was making the grunting sounds. Every now and then it caressed the other with its bill, a most touching thing to witness, and one that moved me deeply. Nevertheless, the wounded bird could not be left to perish by slow degrees. Unhappily another shot, fired at it presently, only sufficed to bring it down with a broken wing. Despite this additional injury it gave full utterance to the normal laughing outcry when falling, and, after eluding my grasp, immediately climbed a nearby spruce, where it began hammering vigorously at the trunk, knocking off many scales of the rough bark. This astonishing behaviour was probably intended to deceive me into thinking that it had sustained no disabling hurt, but may have been merely the unreasoning outcome of overwrought excitement. In either case the undaunted courage and prompt resourcefulness of the high-spirited bird were alike remarkable. Of course I did not long delay shooting at it again. This time it fell so disabled as to be easily captured and quickly dispatched. When seized, it uttered a prolonged outburst of squalling cries almost exactly like those which a barnyard fowl will make if similarly laid hold of, and wholly unlike any of the Log Cock's ordinary calls. Although more tenacious of life than most other birds, Log Cocks are not often so very difficult to kill, yet these three were all young of the year, which had not completed their first autumnal moult. Their irides were much lighter coloured than those of adult birds, and either straw coloured or pale salmon.

Much that has just been described is no less distasteful to dwell on now than it was to witness originally. Perhaps it should have been left

unrecorded, but how otherwise than by reporting it thus frankly and in full could the interesting fact be established that the Pileated Woodpecker may display such admirable fortitude and utter vocal sounds so unusual, when grievously wounded? Only those of us who make free use of the gun are likely ever to have experience of this particular kind. However harrowing it may prove to one's feelings when obtained, or to those of others to whom it may afterwards become known, a detailed and permanent record of it should not be omitted or suppressed on that account, provided it affords evidence that adds acceptably to our common stock of definite knowledge respecting any bird or beast.

1883, October 27.— We hear Pileated Woodpeckers everywhere about the Lake this autumn. The voice of one reached my ears to-day across its broadest part, fully a mile in width.

1885, October 9.— Two or three Log Cocks are seen or heard by us almost daily now. They often fly a mile or more across open country, at a single stretch, flapping their wings slowly and ceaselessly after the manner of Crows, and like them, seldom deviating from courses no less level than otherwise direct. Their loud laughing calls are not infrequently uttered by birds on wing, and sometimes by those passing high in air over the Lake.

1893, October 6.— Every day of late a male Pileated Woodpecker has appeared, usually in the morning, on a knoll behind our camp at Pine Point, where there are many dead spruces, both standing and fallen. Thus far I have heard him utter no vocal sounds other than those of the usual Flicker-like laugh which he gives quite as often on wing as when perched. Even within the woods his flight is ordinarily as level as that of a Crow, and correspondingly maintained by slow, continuous wing-strokes, which produce a swishing noise loud enough to be audible at a distance of forty yards or more, when there is no wind stirring. Sometimes, however, he describes deep, undulating curves, like those characteristic of most other woodpeckers, especially when he has not far to go on wing. I brought him within twenty paces this morning by clapping my hollowed hands, thereby imitating the sound of his tapping on resonant wood. Immediately after discovering that he had thus been tricked, he alighted against the trunk of a living spruce and clambered up it, keeping on the backside, but peeping around at me slyly every now and then.

1894, September 19.— Early this morning a Log Cock was heard shouting near our Pine Point camp. Later in the day I saw what was doubtless the same bird, pounding vigorously at the trunk of a much decayed birch. All the while he kept uttering an odd medley of whining, murmuring, and growling sounds, too subdued to be heard at a distance greater than twenty or thirty yards, and closely resembling those made by amorous muskrats in early spring. I cannot recall ever before hearing anything of the kind proceeding from a Pileated Woodpecker, except on a single occasion, (October 11, 1882), when essentially similar, but less continuous growlings and gruntings were traced to

a female Log Cock, clinging to the trunk of an ash beside another bird of the same species and sex that I had shot at and wounded.

1897, May 26.— My assistant, C. H. Watrous, reports finding a nest of the Pileated Woodpecker to-day, not far from the outlet of the Lake. The female bird came out when he rapped on the stub, and flew to a nearby one, whence she called a few times, thereby bringing the male, who at once entered the hole. Watrous left him in it undisturbed.

1897, May 28.— Early this forenoon Watrous piloted me and two other members of our party to the Pileated Woodpecker's nest found day before yesterday. It is in the broad belt of stub-forest that stretches along the south side of the Androscoggin River from Moll's Carry to beyond the mouth of the Megalloway, covering many acres of flat, alluvial country, now flooded everywhere to a depth of several feet. All the trees within this area were long since killed by inundation. Before perishing thus, this particular one, a Brown Ash, selected by the Log Cocks for their nesting place, had attained a height of perhaps forty feet, and a basal diameter of about fifteen inches. Now branchless, almost barkless and much decayed, it stands within forty yards of the main channel of the Androscoggin, yet was not reached by us easily, because closely surrounded by uprooted, as well as erect and crowded, tree-trunks, over or between which the boats had to be pushed by main force. The nest-hole enters the stub on the north-east side, about twenty feet above the water, and is somewhat irregular in shape, having a conspicuously large nick at the lower left hand corner. It looks as if it must have been drilled a year or more ago, but may, nevertheless, be new, for the wood is everywhere too rotten and discoloured to appear otherwise, however recently exposed to view. Without enlarging the hole, Watrous thrust his arm into it to above his elbow, but could not thus reach the bottom of the inner chamber.

On first arriving at the stub we pounded it hard without starting anything. Shortly afterwards, the male Log Cock came flying directly towards us to a small dead balsam that stood within a few yards of where we were sitting in the boats. He remained there only a moment or two, glancing down at us with an expression of calm interest, yet without the least obvious fear, and then swung across the intervening space, no more than six feet broad, to the nesting tree. With feet wide-spread and spine-pointed tail firmly braced against the outer surface of the trunk, he clung motionless for an instant below the hole, gazing into it intently. Having apparently satisfied himself that all was as it should be within, he next thrust in his head, but quickly jerked it out again to look in every direction, and more especially towards us, as if no longer without distrust concerning our intentions. This behaviour was continued for at least a minute, during which he made a dozen or more such false starts into the hole, each time going a little further in than before, until at length we quite lost sight of him, although only a second or two later he thrust out his head again, evidently having turned about within the ampler space afforded by the inner chamber, almost as soon as this was reached. Now obviously apprehensive, because of our suspiciously near and lingering presence, he soon flew from the

hole, first back to the dead balsam, thence to a tall stub considerably further away, where he called several times. Not long after this, he left the flooded stub-forest altogether, winging his way well above it, with level, crow-like flight, to the verdant mixed woods covering the ridge at the rear of Moll's Rock. On reaching this he began drumming, producing a long, smooth, even roll essentially like that of a Flicker, or a Downy Woodpecker, but many times louder. It was, indeed, so very loud and far-reaching that, although its author was now fully a quarter of a mile distant, the sounds came to our ears with startling distinctness, besides rousing many an equally startling echo flung back by resonant, barkless stubs near at hand. Without doubt he might easily have been heard a mile away, if not further than that. Continuing to drum, and also calling or shouting every now and then, the bird remained on the ridge for ten or fifteen minutes, and then recrossed the flooded forest to some stubs on the shore of Leonard's Pond, where he drummed and cackled as before, and for an equal length of time. We thought he might thereby be trying to summon his mate, because of the danger that threatened their nest. If so, the attempt must have proved unavailing, for she neither appeared, nor was heard to answer him. When he finally returned alone, we and the boats were partially hidden in brushwood upwards of thirty yards from the stub. Either overlooking us and them, or indifferent concerning our presence at what may now have seemed to him a safe distance, the big bird entered the nest, this time without hesitation or delay, and did not reappear. After lingering near it a while longer, we left him in it undisturbed, with the intention of revisiting it soon.

To the foregoing circumstantial account of our experience with the Pileated Woodpecker, it may be well to add some mention of thoughts and imaginings suggested to my mind by the regal looking bird, especially when he was clinging to the ash-stub, scarce twenty feet above our heads, his scarlet crest erected, the bright hazel eyes flashing, every pose and movement betokening superabundant vigour, restless energy, proud self-reliance, and altogether untameable spirit. Regarding him steadfastly then, I understood better than ever before why all birds of his race so love the wilderness and shun human settlements. To the very existence of creatures thus constituted, primitive conditions are doubtless almost as essential as they are to that of the bear, the moose, or the lynx. Nor can the remote forests in which this big Woodpecker chiefly dwells harbour many perils that he has much reason to fear. For he keeps mostly above reach of four-footed marauders, and even the more daring and powerful rapacious birds must hesitate to risk encountering a stab from his formidable bill. That it may be used no less effectively than promptly when occasion requires is familiarly known to every gunner who has carelessly laid hold of a wing-broken Log Cock.

The bird watched to-day showed few signs of timidity and none of positive fear. Although evidently perturbed in mind because of our intrusion, he seemed more inclined to resent, than to be intimidated by it. Such, at least, was the impression conveyed by his general behaviour, and also by his loud vocal and drumming calls which, indeed, strongly suggested indignant protest, and may really have been intended to express it, but probably had other significance, as already stated. His drumming was no less impressive than emphatic and far-reaching. It rang out and reverberated through the flooded stub-forest, with much the same startling and dominating effect as that of fire-bells clanging at dead of night in quiet country villages. His alarum had, moreover, some undefinable quality that made it appeal very strongly to the imagination. Whenever he sounded it, I found myself half expecting to hear it similarly answered from different directions, and then to see hordes of big, scarlet-crested Log Cocks charging at us on wing, with hostile intent. But nothing replied to it save the echoes, and the only large bird that appeared conspicuously was a brown eagle, soaring calmly high in air above the grim array of crowded, weather-beaten stubs.

1897, May 31.— With Jim Bernier, our guide, I went to the Pileated Woodpecker's nest this forenoon. No bird came out when we rapped on the stub. Nevertheless, I set up my camera, with the tripod firmly lashed to an old root, hoping that one or the other of the pair might soon return. But although we waited there almost two hours, nothing was seen or heard of either bird.

1897, June 3.— Shortly after dinner, we all went together to the flooded forest opposite the mouth of the Megalloway, with the intention of cutting into the nest of the Pileated Woodpeckers, and the rather confident expectation of thereby obtaining a set of the much coveted eggs. But no Log Cock was in or near the stub when we reached it, and none appeared during the two or three hours that we afterwards spent watching it. Hence we refrained from disturbing the nest, hoping that the birds may yet return to it, but fearing that something must have occurred to make them desert it permanently, perhaps without laying any eggs. As I have already noted, both members of the pair were seen by Watrous when he first found it, whereas only the male came to it when we were next there, on May 28, and neither bird on May 31, the date of our last visit. We now are inclined to think that the long continued, yet unanswered, calling and drumming of the male on May 28 may have been for a mate, even then dead or otherwise incapacitated from responding to his apparently urgent summons.

This nest was afterwards revisited only once, and then only by Watrous, who reported continued absence on the part of the birds, and his conviction that there was no longer any hope of their returning to it. Our total subsequent

neglect of it was due, if I remember rightly, partly to the fact that subsidence of the flood-water had rendered the stub-forest inaccessible by boat and still more largely, perhaps, to what seemed the necessity of devoting all our time and attention to seeking or watching nests of certain other birds.

1897, September 21.— Shortly after reaching the head of Curtis Meadow and disembarking from the boats this morning, we heard a Pileated Woodpecker calling afar off in a "cedar" (arbor vitae) swamp. Presently it appeared on wing, flying nearly over us to a tall, branchless stub, standing about forty yards away in an open, marshy spot bordering on a brook. Here it remained for at least five minutes. By successive short and rather laboured hops it first ascended the barkless trunk almost to the top and then clung there awhile, glancing alternately down at us and off over the forest, with scarlet crest conspicuously erected most of the time and glowing like a living coal, when so held that the sunlight streamed through it from beyond. Every now and then the bird cackled, giving the usual prolonged series of wide-spaced *cucks*. At length it uttered the brief, Flicker-like call, not dissimilar to the cackle in tone, but consisting of more tremulous and much more rapidly emitted notes. This was repeated several times. All the while the bird directed its gaze fixedly westward, as if expectant of being answered from that direction, towards which it finally flew when leaving the stub. Although less near us than I have often had living Pileated Woodpeckers elsewhere, it was seen to unusual advantage, because of the open surroundings and favouring lights. Thus viewed, it seemed to us all an impressively handsome creature and somehow suggested to my mind, as have others of its species on previous occasions, an Indian in his war panoply, perhaps by reason of its proud bearing and the barbaric splendor of its flaming crest.

1903, June 14.— As Jim Bernier and I were paddling down a wooded reach of Cambridge River, late in the afternoon, we noticed a Woodpecker's nesting hole, certainly that of a Log Cock and apparently freshly drilled. At a height of perhaps thirty feet above the ground, it enters the west side of a tall stub that stands near the river-bank in swampy forest, about half a mile above Abbott's Mill. No Woodpecker of any kind was seen in its immediate neighborhood. [Unfortunately we could not then stop to examine it, and I was obliged to depart from the Lake early the next morning, but Alva Coolidge visited the nest only a few days later at my request, finding a brood of young Log Cocks, that had evidently left it not long before, clambering about over the outer surface of the stub. Sometime during the following spring, (that of 1904), he went to it again with a companion, who climbed the tree and found in the hole four young Acadian Owls, two of which were considerably larger than the other two.]

1907, January 21.— Log Cocks occur sparingly at every season in second-growth evergreen woods near Dr. Gehring's place at Bethel, Maine. I heard one there this morning. He called only once, but then close at hand, and for a considerable length of time, giving the comparatively unusual dual outcry which begins with a short, Flicker-like laugh and then runs, without interven-

ing pause, into a prolonged series of wider-spaced and more deliberate calls. The opening part was very like a Flicker's "shouting," but louder and less hurried. The notes that followed became more and more disconnected, until finally separated from one another by intervals of two or three seconds each. Altogether they lasted much longer than any that the Flicker ever utters consecutively. They are oftenest given thus by solitary Log Cocks, but whether or not solely by males of that species I am unable to state. The briefer and more pleasing laugh is common to birds of both sexes and almost all ages. They make frequent use of it at every season, especially when roving in couples and calling to one another from stations rather far apart. As compared with the Flicker's corresponding utterance, it is commonly briefer and more tremulous, besides terminating more abruptly and feebly, with notes fainter than the rest and noticeably lower pitched. These differences are not always to be depended on, however, either collectively or individually, for the Log Cock's laughing outburst sometimes sounds almost precisely like that of a Flicker, at least to human ears.

Melanerpes erythrocephalus (Linné)

Red-headed Woodpecker

Of rare and perhaps merely casual occurrence in late spring and early autumn

Late in the afternoon of May 30, 1871, Ruthven Deane and I approached Lake Umbagog, journeying together by stage-coach from Bethel. He had visited the region once or twice before, but it was then new to me. As we were nearing the foot of the mighty hill down which the road winds steeply from the village centre of Upton, before reaching Abbott's Mill and the Lake House where it terminates, a Red-headed Woodpecker flew from a fence-rail by the roadside to a stub in a neighboring pasture. The stage-driver obligingly stopped his horses long enough to enable me to follow and shoot the handsome bird, which proved to be a female in full nuptial plumage. It was the only representative of its species that has ever fallen to my gun anywhere in New England, besides being the very first bird of any kind to be killed by me in the Umbagog Region. I have, however, since met with the Red-headed Woodpecker there on two occasions — September 12, 1887 and May 18, 1896. A bird seen on the former date was immature, and probably hatched that year, for it showed no trace of red about the head or of blue on the back as it flew close past me across the road, not far from Marshall Whitney's house on Upton Hill, to a solitary larch

growing in open pasture land, where it lingered only a few moments before resuming its flight towards woods in which it quickly disappeared to be seen no more. On the latter occasion I was sitting, with several friends, on the front piazza of Lakeside Hotel, just after breakfast, when a Red-headed Woodpecker in full nuptial dress came flying over the open, grassy intervale, stretching between the house and the Lake, to a fence-post on which it perched very near us. After remaining there scarce half a minute, it flitted from post to post along the fence, and finally entered a cluster of young apple trees, where it was promptly assailed, and quickly driven into woods beyond, by a nesting Robin who evidently regarded it as a suspicious character, probably because few birds possessing similarly vivid and conspicuous colouring ever appear in that neighborhood.

In addition to the records above given, my notes furnish three others. The first of these relates to a remarkably handsome and fully adult but unsexed specimen, which Mrs. Charles Bartlett received in the flesh from Errol, New Hampshire, in September 1882, and which I afterwards saw, mounted, in her collection at Poplar Tavern; the second to a bird, also mature, which Mr. Charles R. Lamb met with during the earlier part of June 1885, near Errol village, where it was flying from post to post of a roadside fence; the third to still another adult which Miss Clara A. Hayward sent me on May 30, 1886, from Upton, Maine, where it was shot somewhere near the shores of the Lake, probably by one of her brothers, and perhaps several days before the date of mailing, just mentioned, for it was far advanced in decomposition when it reached me at Cambridge. I succeeded, however, in preserving its skin, and also in ascertaining by dissection that it was a male.

The occasional appearance of Red-headed Woodpeckers in the neighborhood of Lake Umbagog during the latter half of May and the earlier part of June suggests, of course, the possibility that they may sometimes breed there. If this ever happens, I have failed to obtain evidence of the fact other than that furnished by the mere presence of the birds as above reported.

Colaptes auratus luteus (Bangs)

NORTHERN FLICKER. YELLOW HAMMER. PIGEON WOODPECKER

Common summer resident; abundant autumnal migrant
May 11–October 29

The Flicker is chiefly confined to the more open parts of the Umbagog Region, where it appears in spring before the snow has wholly gone from even the sunnier slopes, and departs in autumn not long after deciduous trees have shed their foliage. In summer it is about as numerously represented, as in eastern Massachusetts, throughout the farming country lying near the southern end of the Lake and stretching thence eastward, southward, and westward along the roads leading to Andover, Bethel, and Errol, as well as in that bordering on the Megalloway River in both the Upper and Lower Settlements of Wentworth's Location. At this and other seasons it also occurs more or less commonly in burnt lands and along stub-lined shores of lake, pond, or river, but is rarely encountered far back in dense living forest except, perhaps, in the neighborhood of camps where the trees have been cut away or thinned. For Flickers love full sunlight and are not content to remain long anywhere in densely-shaded places. They used to breed regularly, if somewhat sparingly, among the stubs which formerly abounded almost everywhere about the Lake and on the banks of neighboring broad and sluggish river-reaches, then furnishing innumerable attractive nesting sites for woodpeckers of several kinds. After these water-killed trees had generally disappeared from such low-lying and oft-inundated shores, most of the woodpeckers accustomed to tenant them were forced to settle elsewhere while hatching and rearing young. The Flickers have since resorted chiefly to the outskirts of upland forest for this purpose, although scattered pairs still nest here and there along the borders of the Lake, especially in certain little sheltered coves where venerable stubs continue to stand in close array, much as of yore, thanks to protection afforded against devastating winds by encompassing evergreen forest. After the breeding season is over, both old and young birds frequent grassy fields, meadows, and other openings, singly or in couples, or perhaps as many as three or four together, feeding mostly on the surface of the ground and flying off to the nearest fence-rail, tree-top, or wood-edge, if disturbed. They are also given to seeking food in sunny little glades, surrounded by dense thickets of young spruces, balsams, and other coniferous trees

that have been permitted to spring up in neglected hillside pastures. I used to start and be startled by them rather frequently, while beating such covers for Woodcock with the aid of a dog. It happened oftenest in September, when there is always a more or less marked influx of migrant Flickers, which doubtless come from farther north. They begin to appear early in the month, and are most numerously represented towards its close, although comparatively few of them, or of the more locally bred birds, remain after the end of the first week of October, and almost none later than the middle of the latter month. At the height of this autumnal flight one may usually see at least twice or thrice as many Flickers as can be noted in the same localities, within an equal space of time, at any other season. They often appear still more plentifully and sometimes, but only rarely, so very abundantly that scores of them may be seen in a single opening, and hundreds during a walk of no great length. On such occasions they seem uncommonly restless, and seldom linger in the country for more than a day or two. Apparently they are accustomed to leave, as well as enter, it by night, for I have never witnessed anything in the nature of obvious diurnal migration, either from or into any part of the Umbagog Region. Some of the more interesting of my field-experiences with them there are narrated nearly as follows in the journal:—

1876, June 5.— A male Flicker emerged from a nest in a stub by the Lakeshore when we pounded at the base of the trunk. It probably contained eggs, but could not be reached, because the stub was unsafe to climb. A perfectly-fresh and uncommonly-neat looking, but tenantless hole in the very next tree must have been drilled by this same pair, and then abandoned by them for some inscrutable reason.

1876, June 23.— A Flicker's nest robbed by us earlier in the month has not been deserted, although we enlarged the entrance hole considerably on that occasion. Since then the birds have excavated the interior cavity about a foot deeper. It contained a second set to-day, all six eggs of which were fresh.

1880, May 28.— All the eggs in four nests of the Flicker examined by H. B. Bailey to-day had been incubated four or five days apparently. Only one set consisted of more than six eggs and that had seven. Alva Coolidge assures me that he once found eleven lying together in a Flicker's burrow.

1887, October 31.— Flickers evidently depart from the Umbagog Region rather early in autumn. During the past two weeks I have not met with even one, although in September they were more than ordinarily numerous, according to the native hunters.

1893, September 20–27.— Only one or two Flickers were seen by us on the 20th along the road leading from Bethel to Lakeside. On reaching the Lake I was informed that none had been noticed there for weeks previous to this.

They appeared in large numbers on the 21st, and continued abundant up to the 24th, occurring invariably in flocks containing from five or six to ten or twelve birds each. We met with them only in clearings where they spent practically their entire time feeding on the ground, usually in low, wet meadows, or intervale lands covered with short grass, but occasionally in hillside pastures among stumps and bushes. Quite evidently they were migrants from farther north. Only a few remained on the 25th, but there was a second and rather considerable incursion of presumably different and freshly-arrived birds on the morning of the 26th.

1894, September 19.— Very many Flickers scattered along the roadside between Errol and Dixville Notch. Their behaviour indicated that they were migrants, which had arrived not long before from farther north. We saw no more than twelve together anywhere. All were in fields or other openings, bordering on the road. When, disturbed by our approach, they took wing and flew off towards neighboring woods, their white rumps showed conspicuously against backgrounds of dark spruce foliage. Often we could see only this snowy-white patch, rising and falling in billowy undulations. It might then have been mistaken for a piece of white paper, blowing before the wind, had we not known that it was a characteristic marking of the otherwise invisible bird.

1895, October 1.— Migrant Flickers were numerous in Grafton and Newry to-day. We counted twelve in one flock and must have seen upwards of thirty or forty all told. Most of them were in spruce-grown pastures and very shy, as well as restless, rising on wing far in advance of us and taking long flights in various directions.

1897, September 7.— Shortly after sunset this evening we saw a Flicker fly to a stub on the shore of the Lake and enter a hole that looked like an old nesting burrow. The bird must have gone there to pass the night, for it did not reappear, at least before dark. I did not know before that Flickers are accustomed to roost in holes thus early in the autumn.

1898, September 26.— While hunting for Woodcock to-day, in covers near Lakeside and on Upton Hill, my friend James C. Melvin saw, he assures me, not less than four or five hundred Flickers. Being habitually moderate of statement and accustomed to careful observation of all birds which interest him, Melvin is not likely to have overestimated the number of Flickers. He found them almost everywhere, in woods as well as fields, but oftenest and most plentifully in pastures and grassy openings surrounded by spruce-thickets. Scattered about singly or in little flocks comprising from two or three to ten or a dozen birds each, they were mostly engaged in feeding on the ground. When flushed, they seldom went far, and never were seen to make really long flights.

1898, September 28.— Going again over the same ground travelled on the 26th, Melvin saw only about half a dozen Flickers this forenoon. Hence the hordes of these birds met with by him on the former occasion must have left at least this particular part of the country during the interim between the dates just mentioned.

Flickers are familiarly known as Yellow Hammers to most of the native guides and hunters of the Umbagog Region, by whom they are comparatively seldom molested. The frequency with which one finds their gold-and-black-barred wing and tail feathers strewn over the ground along the outskirts of the forest indicates, however, that they must be preyed on rather often by rapacious birds or mammals, among which, without doubt, are included the Cooper's and the Sharp-shinned Hawk, as well as the equally remorseless, but less common Goshawk, and perhaps, also, the Duck Hawk. Sparrow Hawks and Pigeon Hawks delight in bullying or teasing them, but never, so far as I have observed, actually harm them. On the whole they seem freer from serious molestation than are most birds of equal size and similarly conspicuous presence. Their nests, moreover, are so placed as to be safeguarded from most of the dangers which beset those of other birds, and they lay numerous eggs. Hence it is not surprising that they continue to hold their own so well in the region about Lake Umbagog and elsewhere.

CAPRIMULGIDAE

Antrostomus vociferus vociferus (Wilson)

EASTERN WHIPPOORWILL

Rare summer resident
May 16 (1881)–September 28 (1895)

The song of the Whippoorwill is familiar, of course, to almost everyone who has passed many summer nights in thinly-settled parts of New England. Some consider it displeasingly monotonous and insistent; others regard it as objectionably sleep-disturbing, particularly when oft-repeated at midnight hours on gate-posts or door-steps of isolated farm-houses — which happens occasionally; but most people like to hear it or even delight in doing so, not perhaps so much on account of whatever musical quality it may possess as because of its romantic interest and attractiveness, especially impressive when, of a warm and windless night in midsummer, the bird's rapid utterances come faintly but distinctly to one's ears from afar, issuing from remote woodland depths obscured by fading twilight, or scarce better illumined by stray moonbeams penetrating through dense canopies of

leafage. Thus heard, the Whippoorwill may revive sad, as well as happy, memories of bygone years and half-forgotten friends or friendships. For at a distance its voice seems less glad, than plaintive, and hence is likely to be suggestive of melancholy thoughts, at least to sensitive minds inclined to harbour them.

Whippoorwills are everywhere much oftener heard at night than seen at any hour, especially in late spring and early summer. Being accustomed at these seasons to indulge in far-reaching nocturnal outcries, and also to shift stealthily from place to place during brief intervals of silence they often seem more numerously represented than is actually the case. About Bethel, Maine, and thence northward for some fifteen or twenty miles along the valley of Bear River, they breed in second-growth woods, both evergreen and deciduous, almost, if not quite, as regularly and commonly as in eastern Massachusetts. The more extensive and primitive forests lying beyond Grafton Notch, in the Umbagog Region proper, seem comparatively unattractive to the Whippoorwill, for within them the bird has never to my knowledge occurred otherwise than sparingly and irregularly. Indeed, I have noted it there on no more than the few occasions referred to as follows in the journal:—

1871, May 30–June 10.— During this period a Whippoorwill sang every night near the Lake House, where Ruthven Deane, C. J. Maynard, and I were staying at the time. Although no other birds of that species were met with by any of us, they occur throughout the surrounding region, especially in the neighborhood of burnt lands, according to the testimony of local guides and hunters.

1874, August.— Shot an adult male Whippoorwill, flushing it in the daytime among scattered, second-growth birches that have sprung up where the original forest had been destroyed by fire.

1876, May 28.— Heard a Whippoorwill singing this evening not far from the Lake House.

1881, May 16.— A Whippoorwill sang vociferously at nightfall near the Lake House, although rain was falling heavily and continuously all the while.

1888, September 11.— While encamped in tents on the banks of Cambridge River just below the old log dam at "The Sluice," we were awakened at daybreak this morning by the voice of a Whippoorwill, coming from somewhere near at hand. His familiar note was given only four or five times, in the usual quick succession. We did not hear him at all last night, although it was calm and warm. As twilight was falling this evening, he sang again and at frequent intervals, for fifteen or twenty minutes, but without once uttering more than nine consecutive calls.

1888, September 15.— A Whippoorwill, no doubt the selfsame bird heard in the morning and evening of the 11th, proclaimed the oncoming of dawn today in the same place, this time calling only once and then uttering but five notes.

1895, September 15.— As twilight was fading this evening, a Whippoorwill sang once within a few rods of our camp on Pine Point, uttering eight or ten notes in rapid succession.

1895, September 28.— At the same hour and place as on the 20th of the present month, I again heard a Whippoorwill sing, this time thrice. He gave from six to eight consecutive calls on each of these occasions.

During years now long since past, when my gun was freely used for purposes of collecting, I sometimes devoted the greater part of a moonlight night in May or June to the pursuit of Whippoorwills, usually in second-growth oak woods and brush-grown pastures near Concord, Massachusetts, or not far from the little village of Marston's Mills on Cape Cod. In both localities the birds were then so numerous and ubiquitous that they might be heard almost everywhere, at any hour between nightfall and daybreak, when the weather was fine and the moon at her full. Yet only one of the very many, followed more or less persistently by the sound of their voices on these occasions, was ever so much as dimly seen. He, poor bird, permitted close approach while singing vociferously on a fence-post by a wood-edge, and paid for this heedlessness with his life. I got equally near a few of the others without being able to see them, sometimes in open places flooded with moonlight where everything seemed plainly revealed by it. But most of them kept well beyond gun-range, whether deliberately and systematically, or only fortuitously, because of restless flittings hither and yon, it was difficult to decide. However that may have been, they were certainly as elusive as so many Will o' the Wisps.

Chordeiles minor minor (Forster)

Eastern Nighthawk

Formerly an abundantly represented summer resident; now comparatively seldom seen, except at seasons of south-bound migration when it still occurs not uncommonly.

May 14 (1881)–September 21 (1900)

Nighthawks bred regularly and very numerously throughout the Umbagog Region when I first visited it in 1871, and for some fifteen or twenty years later. One could not then be long afield of a calm

morning or evening in May or June without seeing or hearing them by dozens, if not scores. Engaged at such times in towering nuptial flight or in the pursuit of insect prey at lower altitudes, they appeared no less conspicuously than plentifully about Lake Umbagog and the open farming country at its lower end. Various other parts of the region were almost equally favoured, and few altogether neglected. Indeed the sight of the deviously gliding birds, or the sound of their strident calls was too frequent to seem other than commonplace wherever one went by water or land, whether far up such rivers as the Cambridge and the Megalloway, or for miles back into the forest. Although thus ubiquitous when roving about on wing, they seldom alighted to rest, and probably never bred elsewhere than in semi-open places, preferring those made so by forest fires that had run not long before around the edges of stump-besprinkled clearings, or over wooded areas greater in extent and more remote from human settlement, blackening the surface of the ground and killing almost all the trees. No doubt there were many other equally shadeless, and even remoter places, perhaps including some at high altitudes on barren mountain crests or slopes, where nighthawks regularly nested, as well as slumbered in the daytime. At evening they often came in fairly bewildering numbers close about the Lake House, to glide lower and lower over its grassy dooryard as twilight deepened, also alighting freely on fresh-spaded earth in a garden beyond. Most of those appearing thus were females, and only these were ever known to settle in the garden. Precisely what they sought in it was never definitely ascertained. Beginning to resort to it soon after arriving from the South in May, they continued doing so at irregular intervals, and in undiminished numbers, through June and well into July, but not after the close of the latter month. Hence the mysterious habit must have been confined to Nighthawks breeding in that neighborhood, or at no great distance away. In comparison with these, the birds accustomed to pass and repass on migration, to and from summer haunts lying further north, were then so inferior in numbers as to attract little notice. Without having since increased numerically, they now conspicuously outnumber the local birds, because only a very few of the latter continue to revisit their former haunts. The general desertion of these began about 1890, or perhaps a little earlier, and during the next following decade progressed steadily, yet so gradually as to attract little notice. Indeed, it was not before the year 1900 that we fully realized to what extent the Nighthawks had diminished locally. Nor was their decrease confined to the Umbagog Region. Elsewhere in New England, if not very generally throughout it, many, if not most,

of their customary breeding stations were abandoned during the same period, either totally or in part. This wide-spread yet gradual withdrawal from long tenanted haunts, which remain essentially unchanged and within which the birds are unknown to have ever suffered much from human or other persecution, is difficult to account for. Possibly they were shot off, year by year, while journeying southward through states where gunners show them little mercy, but if so, why has not the same fate befallen others of their race who summer to the northward of Maine and New Hampshire?— which apparently has not happened. Perhaps, however, the latter migrants seek other winter quarters, by different routes, thereby escaping similar perils. However this may be, it is greatly to be feared that we shall not soon, if ever, again see Nighthawks flying about over Lake Umbagog in early summer almost as numerously as Swallows. The following extracts from the journal bear witness to the frequency with which this happened not so very long ago, besides furnishing testimony concerning other matters which seem more or less worthy of record:—

1871, May 30–June 10.— During this period Maynard, Deane, and I found Nighthawks abundant everywhere about the southern end of Lake Umbagog. On three evenings (those of June 4, 5, and 6,) they came in large numbers to a little patch of cultivated ground in a garden at the rear of the Lake House. Here they alighted and moved about in an oddly awkward, sidling manner. When one was shot, the others took no heed of its dying struggles, or of the report of the gun, but continued feeding, if indeed, such were really their occupation. All of the eight that we killed in this garden, (on the evening of June 5,) proved to be females. The males meanwhile, were circling high overhead, occasionally swooping down and "booming."

1873, July 20.— At dusk this evening, Nighthawks came flying about the Lake House in large numbers, alighting in the garden.

1873, July 24.— I hear Nighthawks now only during twilight hours of early morning and late evening. If any are abroad on wing in the middle of the night they keep silent.

1873, August 23.— On calm evenings of late we have seen Nighthawks flying about over the Lake in large, and perhaps migratory, flocks. Some of the old males continue to boom regularly, however, and these at least, must be locally resident birds.

1873, September 3.— All the Nighthawks have apparently departed. The last were seen several days ago.

1874, July 30.— I hear Nighthawks constantly these moonlight nights, as late as 10 p. m.

1874, August 13.— The males still boom regularly at morning and evening.

1876, May 28.— Nighthawks appeared very numerously this evening close about the Lake House, many flying low through its dooryard, as of yore, a few booming high in air. We saw several yesterday and heard one or two near Poplar Tavern, Newry, on the 25th.

1876, May 30.— A bird shot at and brought down with a broken wing made no attempt at defence or intimidation when approached and touched, but merely walked away with awkward, sidelong gait.

1876, May 31.— A little patch of freshly-spaded earth in Abbott's garden, just across the dooryard from the Lake House, was visited this evening by an unusually large number of Nighthawks, more, indeed, than I have ever seen assembled there before. Sometimes as many as three or four arrived and pitched down together, but oftener they came singly, gliding just above the top rail of the low, encircling fence, and then skimming low over the surface of the ground, before making a final half-wheel, and alighting rather abruptly. Immediately after this they remained motionless for a moment, with surprisingly-elongated necks upstretched, and then bobbed their heads up and down several times in owl-like manner. While behaving thus, they seemed to be watching and listening. If nothing happened to excite their alarm or apprehension, they soon began running hither and thither rather quickly, but very awkwardly, seldom advancing further than two or three yards at any one time. Not infrequently they tripped over inequalities of the rough surface and pitched forwards on their heads, to flutter helplessly awhile before regaining normal pose and foothold. Thus engaged, they looked and behaved not unlike so many gigantic garden toads, and were constantly picking up and swallowing what I thought must be insects, in a very toad-like way. They held their wings loosely, with the tips trailing on the ground, but carried their tails elevated much as terns are accustomed to do. All that came into the garden were females. The males, meanwhile, were flying about and booming, high in air over the flooded marshes to the westward of the hotel.

1876, June 4.— Seating myself at nightfall on the outer edge of the spaded patch in Abbott's garden, I awaited the appearance of the Nighthawks. They began to arrive shortly afterwards, and for half an hour or so were continually coming and going, but there were never more than three or four on the ground at any one time, and each individual remained there only a minute or two. Several alighted within six feet of me, yet did not seem alarmed when I moved slightly. One, however, may thus have been somewhat startled, for it uttered a clucking *whuk, whuk*. All the others kept perfectly silent. When walking slowly they moved with feeble, toddling gait. As on previous occasions when I have watched them here, they seemed to be picking up insects from the surface of the freshly dug earth. If this be really their occupation why do the females, only, engage in it? That the males never do is quite certain.

1876, June 5.— Horatio Goodwin has bear-traps set along the course of a distant brook. He visited them to-day, accompanied by my friend William Stone. They brought back only a Nighthawk, which they both think must have been brooding; it was shot by Stone as it rose on wing directly from an

egg. Yet the bird proves to be a *male*, in fully adult plumage. No female was seen. The egg lay on a mound almost completely surrounded by water, in a little forest opening growing up to bushes.

1876, June 7.— While watching two male Nighthawks flying about at a considerable distance on the evening of June 5, I noticed that each of them repeatedly swooped down over the same place when "booming," and also that a third bird, apparently a female, rose on wing from beneath where one of the males had descended a moment before. Noting the location of both spots as accurately as dim twilight permitted on that occasion, I visited them in broad daylight this afternoon, and then had not long to search in either before starting a female Nighthawk from her set of two dark-freckled, marble-surfaced eggs. Those of one bird lay side by side on perfectly bare and blackened ground, where not long ago, a forest fire swept through a belt of heavy timber bordering on an upland pasture, killing every tree and leaving no trace whatever of herbaceous vegetation; those of the other bird were within a similarly fire-devastated and shadeless strip of woodland, but lying on a soft bed of intensely green sphagnum that had escaped the flame because of its dampness. Both females behaved essentially alike, flushing about fifteen paces in front of me; simulating wing-lameness as they fluttered feebly off, low over the ground almost, but never quite, brushing it with their wing-tips; alighting on it after flying no more than thirty yards. They then began to bob their heads up and down, precisely as did the birds watched a few evenings since in Abbott's garden, and made an odd clicking sound which I have before heard uttered only by wounded birds of their kind. By shooting one of them, I ascertained that she had been warming the eggs with her breast, and not with the abdomen, as it is customary with most other birds. There were two small, rounded pectoral areas, one on either side, where the skin was quite bare, and otherwise in a condition which showed that it was prepared to serve for purposes of incubation, whereas the abdomen was everywhere densely feathered.

1876, June 9.— At high noon to-day, when the sun was shining brightly in a cloudless sky, Nighthawks were flying ceaselessly high above the Lake, devoting themselves chiefly to the pursuit of insects, but booming every now and then.

1879, May 25.— A solitary male Nighthawk, the first noted here this spring, was booming over the Lake yesterday evening. Birds of this species appeared abundantly at the same hour to-night, when the males were booming far and near in every direction.

1879, June 22.— A male Nighthawk, watched closely this evening, repeatedly mounted heavenward by a succession of jerky, moth-like flights, until an elevation of several hundred feet had been reached, and then set his wings to dive earthward. When within about fifty feet of the ground, the distance varied somewhat on different occasions, and just before curving upward again, he suddenly bent forward, and also partly inverted, the tips of his wings, at the same time booming loudly. Inasmuch as the sound was produced at the precise instant when the angle of the wing-tips was so obviously and pecu-

liarly changed, it must, I concluded, have emanated from them, and could not, in any sense, have been vocal. The bird invariably came down over the same place, although heading for it from various directions. Immediately after his final descent, a female Nighthawk rose from it, to be closely pursued by him as she flew off low over the ground.

1879, JUNE 23.— At noon to-day I revisited the place where the Nighthawks were seen last evening, a burnt-over strip of woodland bordering on the Lake. The female was soon started there. Simulating wing-injury and other behaviour characteristic of wounded birds, she spared no pains to entice me away from where she must have had either eggs or young; but neither could be found, although every square yard of scorched and blackened ground that seemed likely to harbour them was closely searched.

The journal entry last transcribed unfortunately neglects to mention an incident which should have been duly recorded at the time, because of its novel interest. It is still remembered vividly, however, and perhaps also not inaccurately, even with respect to minor details. Hence my present recollection of it may be worth stating briefly and as follows:— I was walking to and fro over the fire-scorched ground at a distance of about sixty yards from where the female Nighthawk was shortly afterwards flushed, but without then knowing precisely where to look for her, when a male, presumably her mate, came flying directly towards me. First noticed perhaps fifteen rods away and twice as many feet above the ground, he approached swiftly, with ceaseless wing-beats and darted close over my head. After keeping straight on a few yards further, at no greater height, he set his wings rigidly, with their tips bent downward, and *boomed*. Although the resultant sound was perhaps not exceptionally loud or strident, it smote my ears with exceeding intensity and harshness at this close range. That it was produced by impact against the air of the bird's depressed, stiff-set, yet swift-moving pinions, seemed obvious. He repeated everything that has just been described half a dozen times or more, before I started the female, and once thereafter boomed in a similar manner, while pursuing her low over the ground. On all these occasions he swept noticeably downward when booming, but not with sufficient abruptness to descend more than five or six feet, while covering a total distance of fifteen or twenty. I have never before, or since, seen a Nighthawk boom so very near the ground, or during such comparatively level flight. Yet the behaviour of this same male on the previous evening was, as already noted, not unlike that characteristic of most birds of his kind when correspondingly employed. They are accustomed, of course, to swoop from elevations above land or water exceeding one

hundred feet, down steep, if not almost vertical inclines, rarely to much below the tops of forest-trees. After terminating such descents in up-curving rebounds, and while climbing deviously heavenward to plunge earthward again, they commonly accompany jerky and intermittent beating of their wings by strident, far-reaching vocal calls resembling those of the Woodcock. All this transpires, however, only during the breeding season, but then is of frequent recurrence, oftenest in the early morning and towards evening, sometimes at midday beneath a cloudless sky, occasionally all night long when there is bright moonlight. Being also peculiar to the males the entire performance must be interpreted as having essentially the same significance as that attributed to song flights of various other birds.

1880, May 20.— Nighthawks appeared numerously this evening — an exceptionally early date for so general a spring arrival here.

1880, June 4.— Dozens of Nighthawks seen at evening, mostly in pairs. The males often mounted hundreds of feet in air, and then dove down after flying females, overtaking and brushing past them within a few inches, at the same time booming.

1881, May 14.— A Nighthawk heard booming this evening. I have never before noted one here at a date so early in spring.

1881, May 16.— One cannot often directly compare the *paap* note of the Nighthawk with that of the Woodcock. I had such an opportunity this evening, however, in a hilly pasture near the Lake House where, despite chill north wind and downpouring rain, both birds were calling freely not far apart. Thus heard, their utterances seemed essentially alike, but the Woodcock's cry was feebler than the Nighthawk's, and perhaps somewhat flatter.

1881, May 29.— At evening Nighthawks appeared in great numbers close about the Lake House, gliding through its dooryard low over the ground, and alighting on fresh-spaded ground in Abbott's garden, as they have been seen to do so often at this season during former years.

1896, May 12–June 14.— Within recent years Nighthawks have ceased to frequent the Umbagog Region numerously in spring or early summer, although continuing to pass through it rather plentifully while migrating southward in late August or early September. During the present season we noted them on the following occasions only:— May 30, two birds flying over Leonard's Pond; June 9, five seen near Lakeside; June 13, one near Lakeside; June 14, one at Colebrook, New Hampshire.

1896, August 18.— Shortly after sunset Nighthawks appeared suddenly in every direction, flying south-west rather high in air. Eight were in sight at once, and others seen later. One uttered the *paap* call repeatedly, but did not boom. I have little doubt that all these birds were migrating at the time.

1897, May 11–June 15.— During this period Nighthawks were observed no oftener than is indicated by the following records, all of which relate to

birds noted at or near Lake Umbagog:— June 2d, two; 4th, two; 5th, five; 6th, two; 7th, two; 8th, two; 9th, heard; 12th, one.

1898, August 22.— While passing through Grafton late this afternoon, on our way to the Lake, we saw Nighthawks flying high in two scattered flocks, one of which contained eight, the other twelve birds, all apparently migrating.

1900, September.— Nighthawks on wing, more or less southward-bound and usually seen towards evening, were noted during this month as follows:— At Pine Point, four on the 3rd; twenty-one on the 6th; one on the 8th; one on the 9th; near the Lake House, one on the 21st.

1909, June 2–23.— A Nighthawk was heard peeping not far from the old Lake House in Upton on the evenings of June 3, 10, and 12. I failed to note this species on any other occasion during the present season.

MICROPODIDAE

Chaetura pelagica (Linné)

Chimney Swift. Chimney Swallow

Common summer resident
May 11 (1897)–September 17, (1887)

Chimney Swifts frequent the Umbagog Region commonly and conspicuously, but never very plentifully, in summer. Throughout almost if not quite every part of it, whether open or forest-clad and at whatever altitude, they may be seen daily, or perhaps even hourly, from the middle of May to the close of August, flying hither and thither at headlong speed, high in air if the weather be fine, close over land or water beneath lowering skies. Such dashing, wide-roving flight, sometimes undertaken apparently for mere diversion, but oftener in obvious eager quest of insect prey, may carry the Swifts engaged in it ten or a dozen miles within scarce more than so many minutes. Few other insectivorous birds habitually go so fast and so far to seek their food and fewer still remain so constantly on wing during hours of daylight while literally none, insect-eating or otherwise, are similarly unknown, at least in New England, to ever alight elsewhere than within enclosures of brick, wood or stone, for the most part erected by man. To the vertical walls of these the Swifts invariably cling, of course, while resting or asleep, partly by means of their claws, also with the aid of spine-pointed tails pressed against the rough surface. It serves, moreover, to support their crude nests of dead twigs, fastened to it and to one another by a viscous secretion from their mouths that hardens like

glue and remains equally tenacious unless exposed to heavy rains which may soften it enough to cause the detachment and fall of the nest, especially when weighted with lusty young. This happens distressingly often during wet summers wherever the Chimney Swift justifies its name by breeding chiefly, if not solely, in chimney flues, as has long since come to pass, of course, throughout most parts of New England, including country settled no longer ago than that lying about Bethel, Maine and stretching thence northward along the valley of Bear River, to Grafton Notch. The habit has not as yet become general, however, anywhere beyond the Notch, in the Umbagog Region proper, although there are here isolated villages and crudely-tilled farms which have been occupied by man for considerably more than half a century. Of the Swifts found about these only a very few ever enter chimneys for any purpose. Most of them nest, as well as rest, on rough-boarded inner walls of barns, sheds, boat-houses and other out-buildings, almost everyone of which having doors, windows, or other apertures left unclosed in summer is likely to be thus tenanted, perhaps quite regularly, year after year, yet never by more than a single pair of birds during the same season. The habit of resorting to such buildings could not have originated hereabouts very long ago and is unknown to have ever been similarly favoured elsewhere. A man then living on Upton Hill and reputed to be trustworthy of statement once assured me that a pair of Swifts had hatched and reared young not long before in his *well*, whence water was drawn up daily in an oaken bucket. This choice of a nesting place was doubtless exceptional for no other instance of the kind has occurred to my knowledge in New England although another has been reported from Florida. The primitive habit of nesting in hollow trees, once common no doubt to all Swifts inhabiting every part of eastern North America, but no longer continued by very many of them, is still characteristic of those breeding throughout forests bordering on Lake Umbagog and stretching thence eastward, northward, and westward further than human eye can reach. Although the birds addicted to this time-honoured practice seem less numerous than the barn-and-shed-frequenting ones in the settlements, because more widely scattered, they may really outnumber the latter by reason of their general dispersion over areas much greater in extent.

To the best of my knowledge and belief the Swifts of the Umbagog Region have repopulated it summer after summer, for the past forty or fifty years, without any essential change of habit or other than trifling fluctuations in respect to numbers. Nor is this surprising for they are

seldom wantonly molested by man, or known to be in any way adversely affected by his remorseless destruction of coniferous forests which, of late, has banished so many other birds from haunts long cherished. The Chimney Swallows, as everyone calls them, most favour those lying nearest the Lake. They especially love to soar high above its stub-fringed coves, with gyrating flight and joyous twittering, just before and after sunset of calm midsummer evenings. During rainy or densely cloudy weather one may see them on wing at all hours of the day, intermingling with true swallows of several species assembled by thousands and skimming ceaselessly, from morning to night, close over the mist enshrouded surface of lake or marsh. Some of my field-experience with them in that neighborhood is described in the following passages extracted from the journal:—

1872, August 24.— While returning overland from the Sluice and crossing an abandoned, forest-encircled farm near B. Meadows on the evening of August 15, we passed a delapidated barn in which Swifts were heard twittering after dark. Revisiting the place to-day I found a nest of the Swifts inside the barn, attached to the vertical face of boarding at one end just below the ridge-pole. In all other respects it was not unlike nests built in chimneys.

1879, May 21.— Late this afternoon Swifts came from every direction to fly about the chimneys of a dwelling house in the village of Bethel, Maine. Increasing rapidly in numbers they soon encircled the house in a great endless chain or ring. As evening drew nearer they circled faster and faster, with excited twittering, and then began dropping into one of the chimneys, a tall, slender one of modern construction. Many failed, at first, to enter it, somehow missing its narrow opening and gliding away to speedily return and renew the attempt, perhaps again and again. They seemed to become more and more successful as the light failed and at length poured down into the chimney in a continuous stream until all had settled therein, no doubt to pass the night. There could not have been less than two hundred of them.

1879, June 15.— Alva Coolidge, now serving as my guide, informs me that in the spring of 1877 he obtained a set of Swift's eggs from a nest in a tall, dead stub standing near the outlet of Lake Umbagog. He found it by happening to see one of the birds fly into the hole, a natural one of rather large size that entered not from above, but on one side of the trunk. The nest was constructed in the usual manner and glued to the surface of the wood inside the cavity. A pair of Swifts are at present building in a carpenter's shop near the Lake House. Their nest, almost completed, is attached to vertical boarding directly over, and scarce ten feet above, a bench at which the carpenter works daily. This I have seen with my own eyes.

1880, June 21.— To-day I saw a Swift first fly into and then from, a hole about six inches in diameter that enters, almost vertically, the trunk of a gigan-

tic living elm, standing far back in the forest on the banks of Cambridge about a mile below its "Forks."

1880, JUNE 23.— Four eggs of the Chimney Swift, far advanced in incubation, were taken by us to-day from a nest built against a vertical inner wall of a barn on Upton Hill, which, according to the farmer who owns it, has been similarly tenanted for several seasons. Last year there were, he assures me, two additional nests, one in the chimney of his house, the other in *his well* attached to the masonry of its sides. When a bucket was lowered into the well to draw up water, as happened daily, the sitting Swift usually, but not invariably, left her eggs and flew out.

1896, JUNE 5.— On the south bank of the Androscoggin, not far below where the Megalloway unites with it, stands a large white pine which has died within a year or two. While rowing past this tree to-day we saw a Chimney Swift enter a small, round hole, no bigger than that of a Hairy Woodpecker's nest, in the side of the trunk about twenty feet above the ground. The bird did not fly, or flutter, or drop into, the hole, but first alighted on the lower edge and *crawled* in, precisely as a nesting Bluebird or Tree Swallow might have done. It came out like a shot and darted off over the river out of sight, when, later in the day, we struck the tree near its base with an oar. I was most anxious to have it opened at the hole, but its trunk was so large and the enveloping bark so thick that Watrous pronounced it unclimbable and as no one else was inclined to differ with him, we had to leave the nest without examining it, much to my regret.

1896, JUNE 4.— Jim Bernier, our guide, saw the Swifts descend in quick succession into the hollow top of a big pine-stub that stands on the banks of Rapid River. Watrous climbed it shortly afterwards, but failed to see either bird or nest inside although the inner walls were smooth and well lighted from above, he says.

1903, JUNE 13.— Fresh bird-droppings within a spacious boat-house that we built several years ago on the bank of Cambridge River not far from the Lake House drew my attention to the nest of a Swift overhead, from which they had doubtless been extruded. It was attached to the vertical base of rough spruce-boarding about fifteen feet above the floor and close under the roof. No bird came to it while I was there. They probably enter and leave the building by a small hole just over the big folding doors at the front, for this seems to be the only opening available for such a purpose.

1907, AUGUST 2.— While strolling westward from Lakeside Hotel along the road that passes it, shortly after sunset, I saw a Swift fly *at full speed* into a hole in the roof of a shed, evidently cut for a stove-pipe, but no longer occupied by one. The disappearance of the bird was followed almost instantly by the chattering of its young within. Reappearing presently it flew off over the Lake. I then entered the building and quickly procured the nest built against one of the end-walls about seven feet above the floor and perhaps two below the peak of the roof. In it were four or five young, scarce half grown and only scantily feathered. As I was looking at them another Swift, presumably adult and the

mate of the first, started from somewhere overhead and darted out through the stove-hole. Neither it nor the other parent bird returned before I departed although twilight was then well advanced.

1907, August 5.— Swifts are breeding in our boat-house again, and are said to have done so annually ever since it was built, ten or a dozen years ago. It never seems to harbour more than a single pair, however, any one season. There were egg-shells on the floor beneath the nest to-day, but I saw no birds, old or young.

1907, August 7.— A Swift's nest high up in Alva Coolidge's barn (near the Lake House) contains young which I have just seen fed by *both* parents who came to it alternately with food.

TROCHILIDAE

Archilochus colubris (Linné)

Ruby-throated Hummingbird. Hummingbird. Hummer

Summer resident, formerly abundant, now appearing less numerously yet quite regularly

May 15 (1896)–September 6 (1887)

Because of its diminutive size and tropical affinities the Ruby-throated Hummingbird seems out of place in remote northern forests such as those of the Umbagog Region. Yet I have known it to occur there very numerously in the month of May and commonly throughout an entire summer. That, however, happened rather long ago. Since then the little birds have never, to my knowledge, been seen in anything like their former numbers, although reappearing regularly and not uncommonly every season, as well as breeding sparingly. A corresponding, if somewhat less marked, decrease has been noticed elsewhere in New England within the same period. It is perhaps sufficiently accounted for by the no less regrettable than obvious fact that Hummingbirds of this species cannot survive a temperature much below 30° Fahrenheit, yet are occasionally exposed to it, especially soon after arriving from the South in spring. While I was visiting Dr. C. Hart Merriam at Locust Grove, New York, in May, 1884, most of the foliage of forest-trees in that neighbourhood was frost-blighted over night, when the thermometer fell to 26°. Several Hummingbirds were found dead about the place next morning, that of the 30th. We saw none living then, or later, although very many had been met with thereabouts, only a day or two before.

At Lake Umbagog, according to my notes, Hummingbirds occurred "rather commonly" from May 30 to June 10, 1871; "quite commonly" from June 3 to 14, 1872; "very abundantly" on August 21, 1874 and for "a few days" previous to this; literally in "swarms," about blossoming Canada plum-trees, on May 22 and 23, 1879. After the year last mentioned they were never again met with so plentifully anywhere near the Lake. While Watrous and I were collecting there in the spring of 1896, we noted single birds, respectively, on May 15, 17, 18, 20, 25, and 30 and on June 2, and 5. Three were seen on May 15 and two, respectively on May 16, 19, and 21 and on June 4. Our record for the corresponding period of 1897 is still more meagre for it mentions only two birds seen on June 5, two on the 11th, and one on the 15th. During August of the former year (1896) I saw one on the 11th, two on the 14th, four on the 15th, one on the 16th, three on the 17th, one the 18th, one on the 20th, one on the 25th.

Some of the Hummingbirds seen about the southern end of the Lake in May and August are perhaps bound to and from more northern breeding grounds. If so there cannot be many addicted to such journeyings for the total number, during seasons of greatest abundance, has never seemed more than sufficient to account for the comparative frequency with which the birds have been encountered in summer, when scattered widely throughout neighboring forests of vast extent. That they breed regularly in these is beyond question, although I am unable to report a single instance of the actual finding of a nest. My field-notes relating to characteristic habits and behaviour of the birds include the following passages:—

1872, June 3–14.— Hummingbirds breed commonly here. Their courtship behaviour is interesting to witness. From some ten feet above where the female sits perched, the male darts down at an angle of about 45° close over her head and thence curves upward at a similar angle, to the same elevation as before. Repoising there for no more than an instant he descends and rises again. These down-and-up-curving flights, often continued for two or three minutes at a time and invariably accompanied by shrill, chirping utterances, are very suggestive of the swing of a pendulum. Immediately after ceasing to perform them the Hummingbird either flies away or settles lightly on a twig beside his mate.

1874, August 5.— A shrill, *screep* call, not closely like anything that I remember ever hearing before, drew my attention to a Hummingbird who was uttering it ceaselessly, at brief intervals, while perched on the topmost spray of a tall spruce well back in old-growth forest bordering on the Tyler Bog. By shooting the bird I ascertained that it was a young one, in nearly completed autumnal plumage.

1874, August 24.— Wearing a purple-and-yellow cardigan jacket, recently obtained from a country store in Upton, I was fishing this morning at a pool of Cambridge River, just below the Sluice, when a Hummingbird hovered for a moment within a few inches of the aforesaid garment, doubtless attracted by its gaudy colouring and probably suspecting that it might prove to be a bank of unfamiliar flowers. Precisely the same thing happened in another place several days ago. The bird did not fly away on either occasion until I startled it by moving slightly.

1879, May 22.— The Canada Plum orchard in our little garden behind the Lake House is now in full bloom and attracting Hummingbirds from far and near. They swarmed there to-day more numerously than I have ever seen them assembled elsewhere. One small, but profusely flowering, tree was especially favoured by them. There must have been at least twenty in or about it at once, making an incessant droning or humming sound very like that of bees. They were exceedingly tame. Many, if not most of them are probably now spending the night in that particular tree for when I last visited it several were noticed perched on its slenderer, in-growing twigs and distinctly outlined against the glowing western sky. They could not have been seen otherwise for daylight was then almost gone.

1879, May 23.— Last night was clear, cold and accompanied by frost which is said to have killed much sprouting corn in this neighborhood. Fearing that the Hummingbirds might not have survived I revisited the plum orchard early this morning to find them congregated there even more numerously than before. Many were buzzing about among the blossoms, but most evidently still too benumbed by cold to do so and seeking to restore lost vitality by sunning themselves under the lea of the trees, perched on weed-stalks only a few inches above the ground with their feathers so fluffed out that each little bird looked precisely like a bunch of dark-coloured down. One and all began to display normal activity and restlessness, however, as the sun rose higher in the heavens. After this the snowy canopies of plum-blossoms were constantly alive with them and witnessed many a hard-fought battle waged by the no less fiery-tempered than fiery-throated males. These were outnumbered by the females in the proportion of at least four to one, yet gave little attention to the plainer-coloured birds, being evidently unprepared to mate as yet and preferring to feed or quarrel with one another, as the mood happened to serve. Their contests were always interesting to watch, because so very spirited and decisive. Sometimes they clinched in the air and came to the ground together to flutter there awhile. Sooner or later one or the other had to give way and seek safety in flight, closely pursued by his more resourceful opponent. I heard from them vocal notes of only two different types, the one shrill and squeaking, the other more attenuated and twittering. These sounds, together with the ceaseless humming of tiny wings and the ever-present sight of the many little birds that wielded them, combined to render the blossoming orchard doubly interesting. What a pity that such interest and attractiveness must be so transient! Within

a day or two at most the blossoms will fall and the Hummingbirds depart, not to be reassembled thus before the end of another year.

1879, May 24.— The plum-trees are showering down faded petals, thereby whitening the ground beneath. Almost all the Hummers have disappeared, only one or two remaining to linger about the scene of their late revels.

1879, June 5.— Hummingbirds that must be settled for the season, if not already nesting, are common enough throughout the forests bordering on the Lake, where I see them daily.

TYRANNIDAE

Tyrannus tyrannus (Linné)

Eastern Kingbird

Locally common summer resident
May 12 (1896)–September 25 (1897)

Kingbirds inhabit various semitreeless parts of the Umbagog Region more or less commonly from about the middle of May to the close of August or a trifle later. Here, as elsewhere, they are given to conspicuous flight and perching, especially in the neighborhood of farmhouses and along roadsides, thereby becoming familiarly known to country people who fail to notice other birds found more plentifully in the same localities, but less inclined to show themselves. Although the Kingbird has little liking for most wilderness places far removed from human settlements, it will occasionally visit remote burnt grounds and regularly frequents the outskirts of primitive forest bordering on upland clearings or on low-lying shores of river, lake, or marsh subject to inundation and fringed with dead or dying trees. Haunts of the last-named kind are especially favoured for breeding purposes, sometimes above all others of whatever description. Indeed, I have never seen Kingbirds more numerously represented anywhere in early summer than they used to be throughout the flooded stub-besprinkled marshes near the mouth of Cambridge River. They evidently cared less for those of similar character and broader extent lying about the Outlet, probably because of their greater remoteness from settled country, yet bred sparingly there and elsewhere along stub-lined shores bordering on northerly reaches of the Lake or on shallow lagoons in the heavily-timbered bottom-lands of the Lower Megalloway. Those frequenting all such localities nested mostly within hollow tree-trunks and perched

conspicuously on the topmost pinnacles of these to watch for danger or for insect prey. Nests so built could not often be reached save by means of a boat, being usually far removed from dry land and over water several feet in depth. To look for them by paddling slowly along the flooded shores was, if I remember rightly, a very pleasing and entertaining ways of spending a fine morning about the middle of June, when most of them contained full sets of the strikingly handsome eggs. It was not difficult to find them for the guileless birds kept ever near, and often hovered directly over them, uttering shrill, twittering cries of alarm when closely approached. Here as elsewhere they promptly assailed and mercilessly bullied almost all large birds that ventured near their breeding places thereby, no doubt, safeguarding themselves against murderous attacks on the part of prowling, bird-killing hawks who seemed no more inclined than any of the rest to face them openly and were never once known to prey on them stealthily. Most of the Kingbirds resorted to upland fields and pastures after bringing out their young, but a few always lingered on about the shores of the Lake and its bordering marshes until the time arrived when all must journey southward.

The local range of the Kingbird includes, besides that already mentioned, all the farming region lying along the road leading from Lakeside to Errol as well as that comprised within the Upper and Lower Settlements of Wentworth's Location in the Megalloway River Valley. Throughout all country of this character the birds nest chiefly if not solely in the branches of trees. The stub-nesting habit seems to be practised only along inundated shores. About those of the Lake it has become less and less common within the past twenty-five years because of the general disappearance of the stubs. A few birds were still tenanting them, however, when I was last there in June 1909. Some of my field-experience with the species in that same neighborhood during earlier periods is related as follows in the journal:—

My notes record, with more or less detail, the position, construction, and contents of twelve nests of the Kingbird examined by me personally and *in situ* at Lake Umbagog in the month of June, mostly between the years 1873–1879 inclusive. Without a single exception they were found near the southern end of the Lake, in trees scattered along its flooded shores or those of neighboring marshes and at heights above the water varying from two or three to eight or ten feet. One nest was built in the upright fork of a living maple, another in that of a dead birch. The remaining ten were all in hollow stubs entered from the top, this being the usual situation here although unknown to be similarly

favoured elsewhere, at least in New England. Of the nests thus placed some were sunk eight or ten inches below the upper rim of the cavity and hence invisible save from above, others so near it that the sitting bird, and perhaps also a small portion of the nest, could be seen by any one passing beneath.

The nests above referred to were largely composed of grey-green *Usnea* moss, but otherwise did not differ much in appearance from those found in Massachusetts apple orchards. All contained eggs varying in number from two to four, but oftenest three, when the set was completed which happened in no instance earlier than June 12 and sometimes not until the 20th or 21st of that month.

1873, August 27.— About ten o'clock to-night I was crossing a broad expanse of open lake in a boat when a Kingbird flew overhead unseen, but uttering his shrill and unmistakable twittering cries incessantly. That he should have been thus on wing at such an hour seems rather surprising unless, indeed, one may assume that he was migrating southward. Warblers evidently so engaged were heard chirping rather often after dark during this same evening.

1896, August 14.— Early this afternoon an immature Cooper's Hawk chased a Song Sparrow hither and thither near where I was standing in the open field directly in front of Lakeside Hotel. He failed to get it, but perhaps might have done so had not a pair of Kingbirds, accompanied by several Barn Swallows, created a diversion in its favour by mobbing him persistently, with truly admirable courage and incessant shrill outcry, darting down at him as he sat perched on a fence-post and also when he was gliding low over the ground. Why he did not turn on one or the other of the sluggish-winged Kingbirds and seize it, is difficult to comprehend. Nevertheless his behaviour was not exceptional in this respect for predacious birds of every kind are unaccustomed to relinquish pursuit of a deliberately selected victim merely because another, apparently easier of capture, crosses their path. Indeed they seem invariably to neglect such opportunities, however tempting.

1897, June 15.— While driving from Dixville Notch to Colebrook, New Hampshire, I noticed a Kingbird perched in a dead tree by the roadside. A moment later he swooped down at three Goldfinches which had just alighted on the branch beneath, scattering them in as many different directions. One was instantly pursued by him with speed and persistence that would not have been discreditable to a hungry Falcon correspondingly employed. For although the Goldfinch evidently flew its very fastest he overtook it four times in quick succession, with apparent ease, yet on every one of these occasions failed to quite close with it because it doubled sharply, at the last available instant, as most small birds will when similarly hard pressed. How the chase ended I do not know for it finally passed beyond my view, behind dense trees. The Goldfinch seemed then to be faltering and the Kingbird about to seize or strike

it down. That he followed it thus relentlessly without murderous intent is not in my opinion, probable. Scarce a mile further on I saw another Kingbird pounce from a fence-post at a Flicker on the ground and then dash after it with amazing speed as it sought to escape by flight, apparently overtaking it just as the two passed beyond my somewhat limited range of vision.

1897, September 25.— A Kingbird perched at sunset in the upper branches of the big and now half dead elm that stands on the river-bank near the Lake House landing, remained there almost motionless for many minutes, evidently disinclined to sally out in pursuit of winged insects although the air must have been thronged with them, being calm and warm. This is an exceptionally late date for a Kingbird to be lingering here.

1897, August 5.— Kingbirds seem either unable or indisposed to discriminate between hawks of different kinds. Such at least, was the case with one watched this afternoon for he made a wholly unprovoked assault on an inoffensive Fish Hawk flying over the Lake and harried it in the customary way, darting down from above to strike it on the head and back. After amusing himself thus for several minutes he flew straight towards me and alighted on the short mast of my cruising canoe within six feet of where I was sitting in the cockpit, but remained there only an instant. The sail was not spread at the time.

1907, August 10.— Despite his notorious daring in attacking hawks and crows, the Kingbird sometimes turns tail and flees ignominously, like many another bully, when boldly faced by birds no larger or better fitted for combat than himself. An instance of this happened to-day when I saw a Sapsucker pursue and overtake a Kingbird in a cove of the Lake behind B. Point. As the two were passing me within ten yards I could see the Sapsucker deal oft-repeated blows with his sharp bill at the back of the Kingbird who was doubling and twisting all the while, with shrill and incessant outcry. How the fracas originated I do not know. After the birds had separated the Sapsucker alighted very near me on a stub, when I was surprised to note that it was a young one, apparently of female sex.

1908, July 29.— While strolling down the elm-embowered village street of Bethel, Maine, this forenoon I saw a Kingbird pursue a Purple Martin considerably more than one hundred yards over smooth lawns and through leafy tree-tops, keeping ever so close to its tail that the two birds seemed merged in one, and pecking viciously at its back and rump. Hence it got a terrible drubbing, but whether because of real or imagined offence was not evident for the trouble had originated beyond my ken. After the Kingbird had ceased to harrass it the Martin rose high in air and circled off over distant fields. It was a young bird yet sufficiently mature to appear fully feathered and normally swift of wing.

Myiarchus crinitus boreus (Bangs)

NORTHERN CRESTED FLYCATCHER

Formerly a not uncommon summer resident
May 12 (1881)–August 14 (1874)

Maynard, Deane, and I failed to meet with the Crested Flycatcher in the Umbagog Region in June 1871. Nor was it found there by Purdie and me in 1873. I took a single specimen on June 4, 1872, and another on August 14, 1874. That the species should thus have been noted only twice during these four summers would seem to indicate that it must then have been of rather rare occurrence, at least in localities where we collected. These, however, were chiefly confined at that time to the neighborhood of the Lake House. Hence the negative evidence resulting from our experience here is perhaps insufficient to warrant the assumption that the birds were similarly scarce, or absent, elsewhere. However that may have been they certainly increased very materially in numbers within the next few years as the following extracts from the journal show:—

1876, JUNE 17.— Heard Crested Flycatchers everywhere about the shores of the Lake. They are fully as common here now as Olive-sided Flycatchers.

1876, JUNE 19.— Henry Purdie returning from a trip up the Megalloway reports Crested Flycatchers rather common about the Lower Settlement there.

1879, JUNE 1.— Although apparently rare here in 1871 and 1872 the Crested Flycatcher is now almost as common as *Contopus borealis* about the shores of the Lake wherever stubs abound. This, also, was the case in 1876.

1879, JUNE 5.— At least six different pairs of Crested Flycatchers seen along shores of the Lake. One bird entered a natural hole in an ash-stub about fifty feet above the water, where it doubtless has a nest.

1880, JUNE 9.— Took a set of five slightly-incubated eggs of the Crested Flycatcher from an isolated stub standing about four rods from shore, surrounded by water several feet in depth. The nest contained the usual snake-skin although snakes are by no means common here. It was about twelve inches below where the bird entered through a natural opening large enough to admit one's hand. The sitting female flew out before we got anywhere near the tree and quickly summoned her mate by uttering a few loud calls. After this the pair made comparatively little outcry and kept mostly beyond shot-gun range.

1897, JUNE 8.— While watching a Whistler's nest in flooded forest near Leonard's Pond, between five and six o'clock this morning, I could not give much attention to a pair of Crested Flycatchers that came close about me al-

though noticing that the female was collecting building material, mostly bark and shreds of decayed wood-fibre which she tore off in generous mouthfuls from a stub near at hand and took to another somewhere behind me. Her mate, meanwhile, sat perched almost directly above me uttering about every half minute a ringing and rather melodious *whit-whit-whit-whit-whit*. This is perhaps the nearest approach to a song that the Crested Flycatcher ever achieves.

Ever since 1876 the Crested Flycatcher was found regularly in summer throughout most heavily-timbered parts of the Umbagog Region. Frequenting deciduous forests chiefly it occurred sparingly in those that clothe remote and rather elevated mountain ridges or encompass steeply-sloping hillside pastures and other openings. Its favourite haunts lay, however, at lower levels and mostly either close about the Lake or in the bottom-lands of such rivers as the Cambridge and the Megalloway. In localities of the latter character the loud-voiced birds were often so commonly represented that one could hear ten or a dozen of them during a boat-trip covering no greater number of miles. Some could be viewed flitting about in the sunshine among branchless stubs, but most were likely to remain unseen in leafy trees standing well within the outer edge of the forest.

Sayornis phoebe (Latham)

EASTERN PHOEBE

Rare summer resident
May 13 (1897)–October 11 (1888)

The wooden bridge that spans Cambridge River just below Abbott's Mill in Upton has sheltered a breeding pair of Phoebes for upwards of forty years. I saw them there first in 1871 and last in 1909. Nothing was seen of them in 1896, but this is said to have been the only season of absence during all these years. The male usually perched on the bridge to sing, mingling the sound of his musical voice with that of rushing waters, above which he and his mate also hovered to capture flying insects, never mistaking for these the pseudo-flies cast so often over that same stretch of swift-flowing river by men fishing for trout. Unmolested they commonly reared full broods of young. If any of the latter ever returned the following spring it must usually have been to replace a parent that failed to do so for this particular breeding station remained the only one known to exist anywhere in the region

prior to 1903. Early in the month of June of that year I noted three different and rather widely-separated pairs, one nesting in the time-honoured haunt near the old mill, another in a boat-house at Lakeside, the third under the roof of Errol Dam. That the Phoebe should thus long have been represented in the Umbagog Region by apparently neither more nor less than two adult birds annually seems not a little remarkable especially as it breeds rather commonly to the southward of Grafton Notch in the townships of Newry and Bethel, as well as to the westward of Dixville Notch, in Colebrook.

Phoebes occasionally visit remote and densely-wooded shores of the Lake in autumn. I saw one at Leonard's Pond on October 9, 1888, when snow was falling heavily, and two days later heard another singing in the same neighborhood, during precisely similar weather. A third appeared at Pine Point on September 17, 1896, flitting close about our camp, amid foliage dropping rain. All these birds may have been migrants that had just arrived from haunts lying further north.

Nuttallornis mesoleucus (Lichtenstein)

Olive-sided Flycatcher

Abundant summer resident

May 14 (1881 and 1897)–September 5 (1897)

Few of the lesser birds that frequent wilderness parts of the Umbagog Region in summer seem so perfectly to belong there as does the Olive-sided Flycatcher. High-spirited, self-reliant, and domineering it scorns concealment and perches conspicuously on the topmost pinnacles of lofty trees, ever ready to dash off at headlong speed in pursuit of flying insects or to assail with utter recklessness other birds, perhaps greatly superior in size and strength. Fearing no other of whatever kind and quick to take offence at the slightest provocation it commonly attacks all winged creatures that venture within its chosen hunting grounds and promptly banishes them therefrom. Perfectly in keeping with these dominant traits of character are its wild, ringing notes, freely given in early summer and carrying so much further than most woodland sounds that one is likely to hear them before any of the rest on approaching the outskirts of the forest, whether by land or water. Wherever it borders on lake- or river-shores, on grassy meadows or upland clearing, on burnt lands or on broad openings of any other

kind it is sure to be frequented by the loud-voiced birds. Nor are they altogether wanting in many of its innermost recesses, being, indeed, found more or less commonly throughout all woodland not devoid of evergreen trees. The presence of these is, however, indispensable to that of the Olive-sided Flycatcher for it will nest in no others at least anywhere about Lake Umbagog. It prefers for this purpose tall, full-branched Red Spruces standing somewhat apart from all other trees at the outer edge of the forest, especially on wind-swept points of the Lake. The male Olive-sided rarely strays beyond ear-shot of the nest and usually remains in its immediate neighborhood, entertaining his sitting mate by frequent utterance of the notes above referred to. Three in number they sound like *gluck, phe-bèa* when distinctly heard, but at a distance the first is often inaudible, being much less loud than either of the other two. Although sometimes given by young birds just out of the nest these calls are for the most part peculiar to the adult male and by him used only in the breeding season. Hence they may be regarded as essentially song-notes. An excellent popular rendering of them, originating among California hunters, according to Mr. Belding, and afterwards somewhat improved on by one of my Umbagog guides, is *"look, three deer."* Parent birds of both sexes are accustomed to call *pill-pill-pill* in Robin-like tones when concerned for the safety of eggs or young. In defence of these they will sometimes sweep and hover close about the head of a climber intent on despoiling a nest, snapping their bills in a very threatening manner. Some of my field-experiences with them in the neighborhood of Lake Umbagog are mentioned in the following extracts from the journal:—

1871, May 30–June 10.— Numerously represented, haunting wood-edges bordering on hilly pastures and other openings where they perched on the tallest stubs. We saw none in flooded forests about the Lake.

1874, July 26.— I still hear them singing.

1874, August 4.— All three members of a brood of young just out of the nest were calling *gh-phebeeàir* in rather feeble tones, but otherwise essentially like old birds. Hence this utterance is perhaps not strictly speaking, a *song* though seeming so very like one and seldom ever heard except in the breeding season or then from any but adult males.

1874, August 8.— The adults are still in unchanged breeding plumage and showing no signs of moulting it.

1876, June 1.— A male, hovering on quivering wings directly over where his mate sat perched, uttering a prolonged chattering cry that sounded like the early spring calling (*what-what-what-what-what*) of the White-bellied Nuthatch.

1879, May 30.— Olive-sided Flycatchers are quite as abundant here now as I have ever known them to be in former years. We were seldom out of hearing of their voices yesterday while paddling up Cambridge River to the Sluice and back, a total distance of thirty miles. They are very evenly distributed through out the dense evergreen forest that overspreads the bottom lands of this river, and within it, perching mostly on the topmost sprays of tall balsams. Each bird seems to favor one of these above all others and perhaps will rarely alight elsewhere, at least to call or watch for insect prey. A dead tree top behind the Lake House is constantly thus frequented. Indeed I have known the Flycatcher who lays claim to it remain in it *through an entire day.* He was there this morning, uttering peculiar, querulous, whirring notes not unlike those produced by *Empidonax acadicus.* Olive-sided Flycatchers emit them oftenest when quarreling with one another. To this they are much addicted, especially in the earlier parts of the breeding season when the truculent males constantly engage in desperate combats, sometimes coming to the ground together, clinching with bills and claws. Nor are such battles confined to the males for birds of opposite sex, and evidently mated, wage them almost as frequently and no less vindictively.

1879, June 23.— A nest of the Olive-sided Flycatcher, fifty feet above the ground on the lateral branch of a tall Red Spruce standing at the edge of the forest near the shore of the Lake, contained only a single egg to-day, but inasmuch as this proved to be somewhat incubated the female would perhaps have laid no more. She left it when my companion began climbing the tree and with her mate darted close about his head, both birds snapping their bills and also keeping up loud vocal outcry. When, before this, we were watching the tree from some distance I noticed that the male drove away every bird of whatever kind that approached it, among others a Hairy Woodpecker who was fiercely assailed and ignominiously put to flight.

1880, June 11.— Found a newly finished nest in a spruce. It proved to be empty yet both birds darted down close past my guide's head as he was climbing the tree.

1880, June 14.— Set C–4. Incubation about four days. Nest in tall, slender, Red Spruce four feet from trunk and forty feet above ground, near extremity of short, lateral dense-foliaged branch. As we landed near a tree standing on shore at B. Point the female Flycatcher left the nest and joined her mate. She presently returned to it, but again flew off when my guide began climbing the tree. After this both birds kept up an anxious *pill-pill-pill* calling, but neither of them ventured very near the guide.

1880, June 16.— Set D–3. Eggs incubated about three days. Nest in a Red Spruce about eight feet from the main trunk and twenty-five feet above the ground, near the tip of a lateral branch. Tree growing on a wooded knoll behind the Lake House. When we rapped the trunk the female Flycatcher flew from the nest and alighted on a nearby dead branch where she remained silent and apparently indifferent while we were appropriating her nest and eggs. The

male did not appear. I have seldom heard him anywhere near the place although it lies within ear-shot of my chamber-window.

1880, JUNE 16.— Set–3. Eggs fresh. Nest at extremity of short, lateral branch of exceedingly tall Red Spruce, three feet from trunk, forty-five feet above ground. Tree standing on shore of flooded Cambridge River marshes. When my guide climbed it both birds swooped close about his head, "snapping their teeth" at him as he said not inappropriately.

1880, JUNE 19.—Set F–3. Egg fresh. Nest in tall, slender Red Spruce about equidistant from its top and base and no more than twenty feet above the ground, near the end of a horizontal branch. The tree stands on a wooded shore of the Lake a few rods back from the water. We rapped on the trunk sharply without starting the sitting female from her eggs; nor did she leave them until my companion had almost reached the nest. She then flew into a neighboring tree and there, with her mate, kept uttering the usual *pill-pill-pill* calls, but neither bird made other demonstration than this.

1894, SEPTEMBER 1.— An Olive-sided Flycatcher seen at Pine Point this afternoon was devoting itself in perfect silence to the capture of flying insects after which it kept darting out from the topmost spray of a towering spruce, always returning to this at the end of each foray. I have never before noted this species at so late a date anywhere in New England.

1897, SEPTEMBER 5.— A date of autumnal occurrence even later than that recorded in 1894 was established by a bird that appeared just before sunset this evening directly in front of our camp at Pine Point where it perched for a considerable length of time in the top of a tall pine, remaining perfectly silent, but making frequent darting flights in pursuit of winged insects.

Myiochanes virens (Linné)

EASTERN WOOD PEWEE

Uncommon summer resident
May 21 (1880)–October 1 (1889)

Returning from its winter home in the South late in May the Wood Pewee occurs sparingly in summer throughout most heavily timbered parts of the Umbagog Region. It prefers to haunt old-growth forests abounding in large deciduous trees and is especially given to frequenting those bordering on the Lake and overspreading the bottom-lands of such rivers as the Cambridge and the Megalloway. Yet even here the sad-voiced birds are comparatively few in numbers and so widely scattered that one may go far by either land or water without noting more than two or three of them. At all times oftener heard than seen they are especially likely to attract one's attention by their plaintive

utterances, towards evening in the month of June, and sometimes through the entire month of August, and at every hour later in the season when the adult males continue to sing freely after almost all other forest-haunting birds have become silent. The calling of the young at the latter season is equally noticeable, but much less pleasing, being a peevish, insistent *pser, pser, pse-er,* oft repeated.

Most of the Wood Pewees migrate southward from the Umbagog Region late in August or early in September, but a few sometimes linger up to the middle of the latter month or even later. An exceptionally belated straggler is recorded as follows in the journal:—

1899, October 1.— A bitter day for the season with harsh north-west wind, overclouded sky and frequent flurries of snow melting as fast as it struck the ground in the lowlands, but whitening the mountain crests from morning to night. Visiting our boat-house by the river-bank in Upton this afternoon I was not a little surprised to find a Wood Pewee there, cowering under the lee of the building with ruffled and somewhat bedraggled plumage, looking benumbed and disheartened. Nevertheless its eyes shone brightly and it made occasional dashing forays among the thick falling snowflakes apparently mistaking them for white-winged insects or at least treating them as such. It spent most of its time, however, on the ground, or rather on piles of chips and pieces of boards, where it fluttered or hopped from place to place picking up food the nature of which I failed to ascertain. Once it alighted on the threshold of an open door of the boat-house and looked in curiously or wistfully. It was a young bird conspicuously marked with grayish on the neck and so very tame that I almost caught it in my hand.

Empidonax flaviventris (Baird and Baird)

Yellow-bellied Flycatcher

Common summer resident
May 18 (1881)-September 8 (1874 and 1887)

The Yellow-bellied Flycatcher is one of the most silent, retiring and elusive of all forest-haunting birds. Hence it may be easily overlooked even where breeding not uncommonly as it is accustomed to do in the Umbagog Region. It occurs oftenest there in swampy woodland bordering on Lake- or river-shores or overspreading cedar bogs, especially where mossy hummocks rise above pools of shallow, mosquito-infested water, beneath dense canopies of overarching foliage. One may also find it distributed more sparingly at higher elevations, per-

haps well towards the tops of forest-clad mountains, but only where the ground is uneven and thickly carpeted with moss. In all these summer haunts it spends most of its time flitting about among leafy undergrowth and commonly preserves a discreet silence yet is not altogether voiceless for birds of both sexes occasionally utter a plaintive *pe-ee* call resembling that of the Wood Pewee, but less loud. The male has also what seems to be a poor apology for a song which he gives only during the breeding season and then at rather infrequent, irregular intervals, oftenest in the early morning, when perched on a leafless branch in full sunlight, perhaps fifteen or twenty feet above the level of the ground. That this utterance varies somewhat in quality, with different birds is shown by the following references to it in field-notes taken from the journal which also relate to certain other characteristics of the species:—

1871, May 30–June 10.— Five specimens taken during our stay were all that we chanced to meet with. They were found in dense, gloomy, arbor-vitae swamps where their presence was usually made known to us by their subdued *pe-ee* calls. Maynard claims to have heard *both sexes* utter a song-note which sounded to him like *killink*. Any startling noise such as the report of a gun, or the cracking of a dead branch seems to excite curiosity rather than alarm on the part of these peculiar little birds for they are likely to investigate its origin by flying straight to the spot whence it proceeds.

1872, June 3–14.— Yellow-bellied Flycatchers are generally distributed throughout the arbor-vitae or "cedar" swamps of this region, but they occur rather more numerously in willow and viburnum thickets along the banks of Cambridge River, all the way from Abbott's Mill to B. Meadows. What seems to be the song of the male is a short, feeble *sl-at*, apparently corresponding to the *chebec* of the Least Flycatcher.

1873, August 29.— Heard several of these Flycatcher to-day in swampy woodland bordering on Cambridge River.

1874, August 3.— Two young Yellow-bellied Flycatchers, just from the nest and scarce able to fly, were perched side by side on the branch of a viburnum overhanging Cambridge River. They uttered rather frequently what seemed to be a juvenile version of the *sl-at* song of adult birds.

1876, June 14.— While following the old Tyler road across the Tyler Bog and through upland woods for a mile or more beyond I heard Yellow-bellied Flycatchers singing about everywhere this morning. The song resembles that of the Least Flycatcher in tone, but otherwise is like that of Henslow's Bunting. It may be closely imitated by uttering the syllables *sl-at* with a strong accent on the second or final one.

1879, May 29.— Heard no less than six different birds along the banks of Cambridge River. I was inclined on this occasion to render the song as *chebec*,

although it is not closely like the *chebec* of the Least Flycatcher, being much feebler and hoarser.

1896, May 24.— One bird singing *kil-lick* with perfect distinctness whereas the utterance of another was no less plainly *che-lat* very like the *che-bec* of *E. minimus*, but more listless and subdued.

1896, May 29.— Heard a Yellow-bellied Flycatcher call *p'tee, p'tee, p'tee.* This utterance was unfamiliar to my ears as coming from such a source, but closely similar, I thought, to the querulous chirping of city House Sparrows.

1896, June 14.— A Yellow-bellied Flycatcher was singing freely to-day in a forest of stunted Red Spruces bordering on the road where it attains its highest elevation in passing through Dixville Notch.

I have spent many a trying hour in the month of June in mosquito-infested swamps about Lake Umbagog looking for nests of the Yellow-bellied Flycatcher, where the birds were breeding commonly enough. Their anxious behaviour often indicated that a coveted set of eggs was very near at hand, but it invariably eluded my search although a few empty nests were found, built into the sides of mossy mounds surrounded by water. One containing a full set of four handsomely marked eggs rather far advanced in incubation was taken for me, however, on June 23, 1883, by Alva Coolidge who found it somewhere along the trail leading from Upton to B. Pond, in the side of a root overgrown with moss. Although no bird was seen near it there can be little, if any, doubt concerning its identity for both nest and eggs are alike unmistakably those of the Yellow-bellied Flycatcher.

Empidonax traillii traillii (Audubon)

Alder Flycatcher

Locally abundant summer resident
May 19 (1896)–September 4 (1888)

The Alder Flycatcher is one of the most numerously represented of all summer resident birds throughout semiopen, partly cultivated sections of the Umbagog Region where it haunts dense thickets of bushes and young trees that have sprung up on wood-edges, in neglected fields and pastures, by roadsides and along the courses of brooks. It occurs no less abundantly among the alders and willows that fringe the outskirts of B. Meadows, through which Cambridge River flows above the Forks, and more sparingly on the banks of the Androscoggin near

Leonard's Pond, but unlike most other Flycatchers is accustomed to shun practically the entire shore-line of Lake Umbagog except that in the neighborhood of Lakeside and at the head of the Cambridge River marshes near the old Lake House, where it breeds commonly enough. It ranges more or less uninterruptedly westward through Errol to Dixville Notch and southward at least as far as Bethel. If I remember rightly it frequents both the Upper and Lower Settlements of Wentworth's Location on the Megalloway River, but this impression fails to be confirmed by anything in my fieldnotes. Some of these read essentially as follows:—

1872, June 3–14.— During this period Ruthven Deane and I found Traill's Flycatchers in abundance near the crest of Upton Hill. They literally swarmed in one locality, comprising about three acres of alder thickets edged with scattered young poplars. Even after we had killed twenty of them here their numbers were not apparently lessened. Although evidently settled for the season they had not apparently begun to breed for we could find only last year's nests, which occurred commonly enough. The Flycatchers were very quarrelsome, fighting incessantly among themselves and driving all other birds from their favorite retreats within which they ordinarily perched low down, often no more than a foot above the ground. By reason of their exceeding wariness and of the character of their haunts it was very difficult to shoot them. When pursued they commonly flitted from bush to bush, keeping just beyond gun-range, or else flew unseen and without halting, to the far end of the covert, perhaps after starting in a manner which failed to indicate any such intention. It was their almost invariable habit to alight facing away from us, even when most keenly alert or apprehensive. They uttered various loud notes at frequent intervals. An emphatic *quee-weèchy* or *queèwich* often varied to *quee-queèah* seemed to represent the song of the male. A petulant-sounding *pip*, sometimes repeated several times in quick succession, was evidently employed by both sexes for calling purposes. They also emitted a querulous twittering, oftenest when quarrelling with one another. All these utterances were commonly suppressed while we remained near at hand, but the report of our guns did not seem to disturb the Flycatchers especially. They occasionally perched on the branches of trees at a considerable height above the ground, but rarely called or sang elsewhere than in the depths of their favorite thickets and there usually low down although sometimes in the tops of rather tall alders. On June 9 we found them numerously represented among willows on the outskirts of B. Meadows above the Forks of Cambridge River.

1874, July 31.— Came upon a brood of young Traill's Flycatchers and shot one of them. Although scarce full-fledged and still fed by their parents they were launching out after flying insects and uttering *quee-wichy* notes almost precisely like those of adult birds.

1888, September 4.— An adult female Traill's Flycatcher feeding young

in an alder thicket showed little concern for their safety, when I approached them closely, save by occasional utterance of the *pip* call. The young kept in the tops of tall alders, well concealed among the leaves. They frequently uttered the *quee-wìchy* notes in rather feeble tones and when fed by the mother gave low chattering cries. Although bob-tailed and otherwise not quite fully feathered they often undertook short, fluttering flights from bush to bush. Like the parent bird they jerked or flirted their tails nervously and not infrequently.

1903, June 4.— While strolling this morning across a broad, brush-grown intervale through which a sluggish brook winds within a mile of the village centre of Bethel, Maine, I heard very many Alder Flycatchers calling far and near. Some of their utterances were noted as follows:— *Quee-quee* or *quee-queer*, with both syllables strongly and about equally accented; *quea*, apparently an abbreviation of the call just mentioned; *quer* or *crer*, subdued, querulous and suggestive of the plaint of a fledgling bird; *pip* or *quip*, evidently a call common to both sexes and very frequently given; *p'see* or *p'seer*, very like the cry of a young Kingbird. Nearly all these notes were varied appreciably from time to time and some ran into others through intergrading forms.

1897, July 31.— The Alder Flycatcher continues to be represented no less numerously than of yore about the outskirts of farms lying near the southern end of Lake Umbagog and along roads leading thence to Errol and to Grafton Notch. It is habitually a retiring and elusive bird, much oftener heard than seen although sometimes exposing itself to view, perhaps in full sunlight, while perched in a leafless tree-top or darting therefrom in pursuit of flying insects. For the most part, however, it keeps closely hidden in dense thickets of alders, willows, and other low-spreading shrubs or young trees. If the ground is shady and somewhat swampy or springy the Flycatcher seems all the better suited with the place on that account. Hence it is especially given to haunting covert also tenanted by Woodcock, but where this cannot be had may content itself with better drained localities. It is vocally noisy during almost every daylight hour at the height of the breeding season, but for a week or so after arriving from the South in May and towards the close of summer is unlikely to be heard often, except at morning and evening when it sings or calls earlier and later than most other birds. What I take to be essentially its song, although perhaps not strictly such, has these common variants;— *Quee-quèer*, *quèe-ah*, *quèe-wish;* and *quee-wishy*. All these notes are so emphatic that it is difficult to decide on which of them the strongest accent falls. The ordinary *pip*-call seems rather subdued when coming from near at hand, yet may be plainly audible hundreds of yards away when the air is calm. A bird heard this evening uttered a *peer* or *p'quee-a* call which was perhaps merely a modification of the *quee-queer* given so often in early summer.

Nests of the Alder Flycatcher found in the Umbagog Region are always loosely constructed of grasses and wood-stalks throughout, including the lining. They are usually placed at no great height above

the ground among slender, upright forks, or shoots of bushes and sapling trees. The following extracts from the journal mention most of those that I have personally examined *in situ*:—

SET A–3. JUNE 27, 1873.— Eggs slightly incubated. Parent bird exceedingly shy, but finally shot and since then skinned. Nest twelve inches above the level of the ground in upright forks of willow growing in thicket sloping down to shore of Lake.

JUNE 17, 1876.— Found a newly completed, but empty nest at least ten feet above the ground in a spruce, an altogether exceptional situation.

SET D–4. JUNE 21, 1879.— Eggs fresh. No bird seen. Nest two feet above ground in a Hardhack bush where it showed so conspicuously that I noticed it when ten yards or more away.

SET E–3. JUNE 21, 1879.— Eggs fresh. Bird heard calling. Nest three feet above ground, on outer edge of hillside thicket composed of intermingling willows and young spruces, in upright forks of willow supported by branches considerably more than an inch in diameter, which is unusual.

SET F–3. JUNE 21, 1879.— Eggs incubated about three days. Sitting female flushed underfoot. Afterwards flitted about shyly, calling *pip*. Nest two feet above ground in wild raspberry bush very effectively concealed by the luxuriant foliage.

SET G–3. JUNE 23, 1879.— Eggs fresh. No bird seen or heard. Nest three feet above ground in Hardhack bush growing in opening on outskirts of thicket chiefly composed of young birch and maple trees.

SET H–3. JUNE 15, 1880.— Eggs fresh. Nest four feet above ground in a hazel bush which, together with many others of its kind, grew in an open pasture. I flushed the sitting bird by brushing close past her. She instantly disappeared in the lowly and isolated thicket, afterwards keeping hidden within it, but calling not infrequently.

SET I–4. JUNE 16, 1880.— Eggs fresh. Female bird remained on them until I got within a yard of her. Nest not far from Lake in upright fork of slender birch sapling. It was rendered conspicuous by long strands of bleached grass that hung down considerably below it.

SET K–3. JUNE 17, 1880.— Eggs fresh. Nest five feet above ground in cluster of hazel bushes well hidden by their broad leaves. Bird flew from it when I was about ten yards away. She was not seen again.

SET L–3. JUNE 18, 1880.— Eggs fresh. Female sat on them until closely approached. Nest four feet above ground in hazel bush where it was so conspicuously placed as to be noticeable twenty yards away.

Empidonax minimus (Baird and Baird)

Least Flycatcher. Chebec

Locally common summer resident
May 12 (1897)–August 29 (1898)

The haunts of the Least Flycatcher in the Umbagog Region are rather strictly confined to forest outskirts bordering directly on the Lake or on river-marshes that it overflows in spring. Five or six pairs of birds usually breed not far from the Lake House, two or three more near Lakeside, as many more on Great Island, one or two on Pine Point and about the same number at Leonard's Pond. Single pairs may be met with elsewhere in sheltered coves. They are, indeed, scattered almost everywhere about the Lake yet rarely stray inland from its shores to distances exceeding two or three hundred yards. I have never once known them to breed anywhere else except in forest-depths near the banks of Cambridge River just below B. Meadow where three males were heard singing on June 14, 1903. In the neighborhood of the Lake their nests are usually built in balsams, hemlocks, or other evergreen trees and commonly lined much more profusely with feathers than are those found in eastern Massachusetts. At the height of the breeding season the males utter the emphatic *chebec* song-note almost incessantly through the day and occasionally after dark, also. On June 22, 1909, I heard it near the Lake House about once every five minutes, from 9 to 9:30 P.M., given in faint, dreamy tones as if the bird were only half awake, which may well have been the case. Most of the Least Flycatchers migrate southward as soon as their young become strong of wing and all are accustomed to depart before the close of August.

ALAUDIDAE

Otocoris alpestris alpestris (Linné)

Northern Horned Lark

Transient visitor in late autumn

Horned Larks have been noted by me personally in the Umbagog Region on the following occasions only:—

1886, October 19.— An unseen bird heard calling in air over the Outlet marshes.

1890, October 3.— A single bird seen, as well as heard, flying over the marshes at the Outlet.

1893, September 22.— A solitary Horned Lark appeared on wing above a grain-stubble near Lakeside Hotel. Coursing low over the ground and calling frequently it passed me within one hundred yards when I saw most of its characteristic markings rather plainly yet not with sufficient distinctness to determine whether the bird belonged to the northern form, *alpestris*, or to its subspecies, *praticola*.

1896, September 25.— Noting a Horned Lark running about on a sandy shore of the Lake at Moose Point, within a few yards of the water's edge and equally near three Semipalmated Sandpipers, I shot it and preserved the specimen. It proved to be an adult female perfectly typical of true *alpestris* and in good physical condition, but less fat than most birds of its kind found along our seacoast in autumn.

1896, September 27.— Saw and heard two Horned Larks flying over the Lake near B. Point.

1898, September 29.— While driving slowly past a ploughed field in Grafton not far above the Notch I distinctly heard the piping of a Horned Lark, but failed to see the bird.

Although I consider it probable that most, if not all, of the Horned Larks above mentioned belonged to the large, northern-breeding form, *alpestris*, it cannot be denied that only one was *certainly* so determined. Some of the others may, therefore, have been representatives of the smaller, paler-coloured race, *practicola*, which breeds throughout much of northern New England, including portions of the Umbagog Region, as will presently be explained.

Otocoris alpestris practicola Henshaw

Prairie Horned Lark

Locally common summer resident

Mr. Ralph Hoffman visited Lake Umbagog late in June, 1903. Returning from this trip he wrote me (under date of July 1):—"In Errol I found two colonies of Horned Larks and flushed the female from the nest with two young just hatched, and one egg."

These birds must, of course, have been Prairie Horned Larks. Although not altogether unexpected their occurrence surprised me somewhat because of the fact that I had looked for them without success,

during previous years, in various open parts of the Umbagog Region including those where their presence was discovered by Mr. Hoffman. They may not have been there long, however, for it is definitely known that elsewhere in New England they have established themselves in various localities within still more recent times.

This form of the Horned Lark probably breeds sparingly near Bethel, Maine, for it has been seen there repeatedly in the month of May during the past few years. It is said to occur commonly in winter some fifteen miles further up the valley of the Androscoggin River, in the township of Shelburne, New Hampshire. I have never found either it or true *alpestris* at that season in the neighborhood of Bethel.

CORVIDAE

Cyanocitta cristata cristata (Linné)

NORTHERN BLUE JAY

Abundant migrant in spring and autumn; not uncommon summer resident; occasionally seen in winter.

Blue Jays migrating to and from summer haunts lying further north appear throughout the Umbagog Region always commonly and often abundantly, in spring and autumn. The spring flight begins about the middle of May and does not wholly cease before the 10th of June. After that comparatively few birds remain to breed, in widely-scattered pairs. Those breeding to the northward begin to return early in September and continue to do so up to the close of October if not later still. Either they or the summer resident ones occasionally linger on through an entire winter, according to the testimony of local hunters. This certainly happens only thirty miles to the southward, near Bethel, Maine, where I noted from one to three Blue Jays almost daily during January, February, and March, 1901. In the neighborhood of Lake Umbagog they are for the most part confined to the forest at every season although by no means ungiven, especially in autumn, to visiting isolated trees and thickets in open country, perhaps by roadsides or even close to farmhouses, thereby becoming familiar to people who otherwise might fail to notice them.

The following field-notes, originally written at the Lake, have perhaps overmuch to say concerning the migratory movements of the

Jays, but as these have particularly interested me a rather full account of them may be not without interest to some of my readers.

1871, May 30.— Saw a Blue Jay take an egg from a Robin's nest and fly off with it, hotly pursued by the outraged Robin.

1879, May 30.— Three or four days ago I was out in a boat near the middle of the Lake when a considerable number of Blue Jays passed high overhead in a compact flock. They kept on eastward over the distant forest until beyond my range of vision. Yesterday I saw a still larger flock, containing at least forty birds. These were flying across B. Meadows at no great height and indeed only just above the tops of some tall alders.

1880, June 12.— While forcing my way through a thicket near where the road to Andover crosses Cambridge River I started a brood of young Blue Jays just from the nest and scarce able to fly. The mother bird was with them. She uttered the bell-note, accompanied by a bowing motion, when approached.

1881, May 18.— Met with at least a dozen Jays flitting together through balsam woods and screaming lustily. I have seen them in much larger flocks of late, flying high overhead in close array like Blackbirds and probably migrating.

1888, September 9.— At sunset this evening when the air was warm, damp and calm, I saw about a dozen Blue Jays scattered about in the tops of small aspens growing by the Lake-shore where they were catching flying insects. In pursuit of these they would mount straight upward from ten to twenty feet and then return to their perches by swooping downward on set wings. Their flights were altogether so very like those of Kingbirds similarly engaged that I mistook them for birds of the latter species at first glance.

1888, September 13.— During the last three days I have seen many flocks of Blue Jays, containing anywhere from a dozen to twenty birds each, flying southward in the daytime over open country, not in scattered order, but as compactly "bunched" as so many Blackbirds correspondingly employed. Without doubt they were migrating.

1889, September 2–October 30.— Jays were abundant everywhere during this entire period. Their numbers did not diminish appreciably towards its close. I noticed no obvious migratory movements, but often saw birds flying back and forth, every few minutes, over ponds, rivers, and rather broad reaches of the Lake. Several that passed me closely while thus engaged had their mouths obviously filled, and their throats also distended, with what appeared to be food of some kind. I thought they must be caching it somewhere after the manner of Canada Jays, but just where they took it was not definitely ascertained. On several occasions I saw them plunge Kingfisher-like from the tops of stubs into shallow water, possibly after small fishes although the prey thus sought is perhaps more likely to have been the larvae of large aquatic insects. Blue Jays frequenting this region often imitate the characteristic screaming of the Broad-winged Hawk very perfectly, but apparently never attempt to reproduce that of the Red-shouldered Hawk, probably be-

cause the latter species does not occur here regularly for wherever it is so found together with them they mimic its far-reaching utterances no less constantly than admirably.

1894, September 11.— A Blue Jay perched in a spruce directly over our camp at Pine Point imitated several characteristic calls of the Canada Jay so perfectly that every member of our party, including three local hunter-guides, believed the bird to be a *Perisoreus* until, at length, it was plainly seen. I remember hearing a Blue Jay utter similar notes on Mount Moosilauke sometime last June.

1895, September 20.— About eight o'clock this morning I was standing on a wooded knoll near our camp at Pine Point, watching some small birds, when a sound resembling that of strong wind blowing through pine-tops came from directly overhead. It could not be ascribed to such an origin, however, for the air was then perfectly calm. The mystery remained unsolved until an hour or so later when I saw a dozen Blue Jays mount in a compact flock, by a spiral course, to a height of several hundred feet above the tallest trees and then dash almost straight down together, with half-closed wings, like so many stooping falcons, thereby producing a loud rushing sound exactly like that heard earlier in the morning. I am inclined to think that on both occasions the birds started upwards with the intention of resuming migratory flight which, for reasons known only to themselves, was discontinued immediately after being begun.

1895, September 21.— As I was bathing in the Lake at seven o'clock this morning a flock of seventeen Blue Jays started from the woods on Pine Point and rose above them to a height of fully *two thousand* feet, by a spiral course not less than a half mile across, making only one complete and another half, lateral turn during the entire ascent. They then started off towards the south-west and kept straight on, with ceaseless flapping; until lost to sight in the distance, thereby accomplishing what was obviously the initial stage of a diurnal migratory flight. I would give much to know how long it lasted and just where it terminated, but that, of course, could not be ascertained. An hour later the members of another flock, seventeen in number, appeared over the Point at a height of about two hundred feet, probably arriving from somewhere further north. Setting their wings they came hurtling down altogether, precisely like those seen yesterday and making the same sound as of rushing wind. It was loud enough to bring Jim Bernier, my guide, running forth from his tent with the expectation, as he afterwards admitted, of seeing a big flock of Scoters pitching down into the Lake. That the first flock of Jays should have apparently started on a migratory journey, and the second have completed one at so nearly the same time of day seems very interesting, and also suggestive of the inference that these flights may often be of no great duration. While engaged in them the birds remain severely silent, in this respect differing from migrating Crows. Such, at least, has been the case with all that I have observed for not one has ever uttered a vocal cry of any kind within my hearing, when on wing.

1897, September 22.— Another flight of migrating Blue Jays attracted my notice to-day. Early in the afternoon they began emerging from swampy forest on the north side of Curtis Meadow and passing out of sight over an elevated ridge to the southward, after rising to heights varying from one hundred to three hundred feet. There were forty-three of them in one flock, ten in another, from three to six each in others and uncounted straggling birds. Some turned back and swooped down headlong into the woods, as happened at Pine Point on the mornings of the 20th and the 21st.

1898, September 30.— Several Jays spent the entire day harvesting acorns in a Red Oak that shades a village street of Bethel, Maine, taking them thence across open fields to rather distant woods. They invariably plucked them from the twigs while hovering on fluttering wings and not when perched. The acorns were still green where the cups covered them. Each Jay apparently always carried two at once, one in the mouth or throat, the other held in the tip of the bill.

1900, September 2.— An exceptionally large flock of Blue Jays, seen to-day in Grafton, must have contained fully fifty birds. When approached by us they flew from a row of apple trees by the roadside to the nearest woods, crossing a broad stretch of intervening open ground in compact order although a few lingered to straggle singly after the rest.

Perisoreus canadensis canadensis (Linné)

Canada Jay. Whiskey-Jack. Camp Robber

Uncommon permanent resident; at long intervals common and seen almost daily in fall

According to the local guides the Canada Jay is generally known to breed in the depths of the forest in March. Family parties, easily recognizable by the presence of several young birds fully grown but still in the uniform blackish plumage, are occasionally encountered in late May and early June. Mr. Brewster shot a young bird on July 26, 1874, moulting from the juvenal to the first fall plumage, and this moult is completed by August 15. In midsummer, however, the Canada Jay is rarely encountered near the Lake. With the arrival of frosty nights in September, the Canada Jay becomes much more conspicuous, and is more frequently seen in the vicinity of camps, where food of various kinds is pilfered and actively stored. Even at this season the number of Jays is surprisingly variable. Thus it was unusually scarce in October, 1885, and exceptionally numerous the entire fall of 1889. Mr. Brewster's notes show that 10 birds in a flock is the greatest number he ever recorded at any one time.

1889.— During September we observed them on only three occasions, on each of which two or three birds were seen in or near swampy evergreen woods. Through October they were seen almost daily, but in nothing like the numbers of the Blue Jays. After the leaves fell, they were met with chiefly about openings, pastures, etc., hunting apparently for grasshoppers, often going out into the fields several hundred yards. They were also frequently observed among stubs along the shore of the lake and rivers. Early in October, two individuals appeared near our camp. For a week or more they were shy, or rather, suspicious, keeping out of sight as much as possible, and not approaching the camp nearer than thirty or forty yards. By degrees they became more familiar, and by the middle of the month showed the utmost boldness, alighting on the table eating out of the dishes, visiting the store tent, hopping into boxes, kettles, etc., in their search for food. For about two weeks we fed them generously with all sorts of refuse from our table, placing this in one spot. After they had become accustomed to our presence, they spent the greater part of each day in carrying food back into the woods, coming sometimes together, but usually alternately every two or three minutes, filling their throats and bills to the utmost capacity, then by short flights, passing out of sight. They seemed to prefer baked beans to any other food which we had to offer them, and next to beans, oatmeal. They would take bread or cracker when nothing else offered, carrying pieces of large size in their bills, after having stuffed their throats with smaller fragments. They did not seem to care for meat when the things just mentioned could be had. Of baked beans they regularly took four at one load, three in the throat and one held in the bill. Sometimes they would eat a little before starting off with a load, but I rarely saw them do this. They worked with great persistency during the entire day, but they did not seem to be particularly early risers, for they did not appear at the camp until about sunrise, nor were they ever seen much after sunset. They also stayed away during rainy weather or at least when it was raining at all heavily, but during a protracted rainy spell, they took advantage of every interval when the rain ceased falling, and made as many trips as possible before it began again. The guides say that they do not like to get their plumage wet, and that if it becomes very wet, they are unable to fly.

We spent the greater part of one day in following them in order to ascertain what they did with the great quantity of food which they carried off. We supposed that we should find them hoarding it in some hollow tree or similar place; but this proved not to be the case. On the contrary, they took it various distances and to various places, rarely or never, so far as we could ascertain, depositing two loads in the same place. They would place a mouthful of oatmeal perhaps on the horizontal branch of a large hemlock, three or four crumbs of bread on the crotch of a dead stub, a large piece of bread on the imbricated twigs of a living fir. On one occasion we saw one deposit four beans carefully on the top of an old squirrel's nest high up in an arbor-vitae tree. My men climbed to a number of places where the birds were seen leaving their load in

order to make sure that they really did this. Sometimes they went only two or three hundred yards back into the woods behind the camp; at others we followed them for upwards of a mile. They were very sly about making their deposits, and, if they saw us watching, would either drop their loads or fly on until out of sight. They had, however, two regular roads which they followed, and their deposits were made all along the line of one or the other of these. On these roads they had regular resting-places in which they alighted for an instant before pushing on. These resting-places were ordinarily about one hundred yards apart. While at work they were very sly as a rule, rarely uttering more than a low, scolding note, but if displeased or disappointed, as, for instance, when the food was covered by a blanket, they would fly up into the trees above the camp and scream in shrill and apparently angry tones for several seconds at a time.

After these Jays had been working steadily for about a week, a third appeared. He was evidently a stranger and was regarded with dislike and suspicion by the other two who neglected no opportunity to bully him to the utmost. As a rule, he submitted to this treatment very mildly, waiting until the other birds were gone, and then taking his turn. Rather curiously he followed the same route, however, as the others, and apparently deposited his loads in very much the same places.

On the morning of our last day at this camp my men put a cover on a large box from which the Jays had been accustomed to take their food for a day or two previously, propping up this cover or lid with a stick. When the Jays appeared, they eyed the cover very suspiciously, hopping around and examining it closely from every side. For nearly an hour, they would not enter the box, but by noon they were going in and out as freely as usual. The men then attached a string to the supporting stick, carrying it into one of the tents, while the Jays were absent. When the birds returned, they at once noticed this slight addition and again showed much suspicion, examining the string closely and even tweaking it with their bills. In fact another hour elapsed before any of them would enter the box. Finally the odd bird which arrived at the camp last as already mentioned, jumped in and was captured. He was immediately transferred to a cage which had been prepared for him beforehand and put in the back part of one of the tents. Shortly afterwards the pair returned, but they seemed to suspect that something was wrong, for they would not come near the box during the early part of the afternoon. At the last moment as we were taking our things down to the boats, however, one of them went into the box, and was also caught. Upon being placed in the cage with our first captive, he at once attacked it so viciously that I was afraid that they would kill one another, and we were obliged to separate them. Both of them moped for an hour or two, sitting with feathers ruffled, eyes closed and breathing hard as if they were on the point of dying; but after this they seemed to become reconciled and eat freely taking food from our fingers without apparent fear. In one way they showed greater wisdom than any wild bird which I have ever before seen captured and confined, namely: after a careful

and thorough inspection of the cage, during which they pecked at the bars and tried every crack or opening, they gave up all attempts to escape, never afterwards trying the strength of their prison in any way. It was evident to my mind that they satisfied themselves that they couldn't get out, and were philosophical enough to accept the situation.

On the afternoon of the next day, I let them out of their cage in a room at the hotel, and one of them flew from the bed to my wrist, perching on it and eating bread from my hand. They would also allow me to pet them and scratch their heads when in the cage without attempting to get away. They ate freely but only a mouthful or two at a time, immediately afterwards refusing the most tempting morsels but, becoming ravenously hungry again within ten or fifteen minutes. They also drank a great many times during the day. When taken in the hand they attempted to bite, but were capable of exerting so little force with their bills as to give little pain. During the first day of their captivity they several times filled their throats and held a piece of food in their bills for several minutes at a time, hopping about the cage and finally depositing the food carefully on one of the perches. This action showed that the habit of storing food is an instinct which is deeply instilled in their nature. But after the second day they gave up this habit altogether.

I have never seen these Jays cross the Lake as the Blue Jays are continually doing, nor indeed have I ever observed them take a continual flight of more than two or three hundred yards. Their wings seem to be used more as parachutes then as means of propulsion, for they rarely flap them except when rising from the ground into a tree. Their ordinary method of moving through the woods is by sailing from one tree to the next, alighting low down, hopping or flitting from branch to branch until they get to a sufficient height to make another scaling flight. Nevertheless, they move with such rapidity that it is difficult to overtake them without running, for they rarely remain more than a few seconds in one tree before starting for the next. There is something peculiar about the appearance of the bird when thus sailing, something which I have never been quite able to analyze. Perhaps it is merely the shape of the wings, which are very broad, and appear to be strongly concave with the tips bent sharply upward. The bird at first sight, while thus scaling is apt to be taken for a Hawk, but its motion is much slower. On the ground it moves by short hops, so elastic that one might imagine it to be jumping on a rubber surface.

It has a variety of notes, most of them shrill and penetrating, the commonest a loud, hawk-like whistle, very like that of the Red-shouldered Hawk, but clearly not, as in the case of one of the Blue Jay's calls, an imitation of it. Another common cry is a succession of short, rather mellow whistles, eight or ten in number all given in the same key. It frequently utters a loud "*Cla, cla, cla, cla, cla, cla, cla,*" not unlike the cry of the Sparrow Hawk. It also scolds very much like a Baltimore Oriole. Twice I heard one scream so nearly like a Blue Jay that I should probably have been deceived had not the bird been very near and in full sight of me. In addition to these notes, it also has a low,

tender, cooing noise which I have never heard except when two birds are near together, evidently talking to one another.

The captives above-mentioned on being taken to Cambridge and put out of doors for several days in a large cage became considerably shyer than when first captured. In fact, at the day of writing, November 9th, they will no longer take food from my fingers, and, when I approach the cage closely, flutter wildly against the wires on the opposite side. They eat nearly everything that is offered them, but seem particularly fond of ripe pears and the flesh of small birds. On putting an English Sparrow in their cage, they at once began to tear it to pieces, and in a short time nothing remained of it but a few bones and feathers. They have become very gentle towards one another, and I now keep them in the same compartment. One bird is continually caressing the other with its bill and uttering the low cooing notes above described. They are very clean in their habits and take a thorough bath every morning, plunging into a large basin and scattering water over their backs until their plumage is completely soaked. In addition to the food above mentioned, they have eaten a number of earth-worms, but of these they do not seem to be particularly fond. They have a habit of soaking nearly everything in water before eating it, especially if the morsel is of a dry character, such as cracker. Portions of the Sparrow just mentioned, however, were also soaked before being eaten. Their spirits vary to an extraordinary degree with the weather. On clear, cold mornings when their cage is hung out of doors, they are very active and noisy, hopping incessantly from perch to perch and continually uttering their various cries. This behavior lasts during the entire day. If the weather is clear and warm they are somewhat less animated and spend more time in basking in the sun. During dark, cloudy, and especially rainy weather, they are silent and move about very little, sitting with their feathers ruffled and apparently suffering from great depression of spirits.

1890, October 3.— A pair of these Jays visited my camp yesterday and the day before. This morning they came again. Thus far they have acted rather shy or rather suspicious, merely passing through the trees peeping down at us curiously. I tried "screeping" them but they paid no attention to the sound. One of them this morning screamed repeatedly *exactly* like a Blue Jay. At first all three of my men insisted that there must be a Blue Jay in the tree but the next moment we all saw the bird repeat the cry four times in quick succession. None of my men had ever known a Canada Jay to make this cry before.

1890, October 25.— I set Will Sargent to following our Jays today while my cook put out a lot of large pieces of biscuit for them. Sargent traced them about a half a mile to a dense white spruce swamp. Here he found two of their storehouses. One in the top of a pine stub where a piece of wood was started off at an angle contained about a pint of biscuit and brownbread. The other in a larch stub in three peck holes of either *Colaptes* or *Hylotomus*, the three holes all crammed full of bread packed tightly, in all nearly a quart. He saw the Jays carry the bread to both stores and they saw that he saw them. In

fact they caught him in the act of climbing the trees. This about noon. He went back to the stubs and found them in the act of removing the last pieces of bread from both. After they had finished this task they came to camp again and worked till dark. He says they alighted regularly on the tops of the tallest trees to reconnoitre before visiting their hoards in the swamp.

1890, October 26.— Will Sargent again followed our Canada Jays this afternoon and found two more of their storehouses, each containing a pint or more of biscuit, beans, etc. One was in the angle at the point where a leaning stub touched another, the other within a large scale of semi-detached bark on a dead hemlock. He watched both places for some time. Each seemed to be visited by one bird only. The one that used the scale of bark as a storehouse, packed each piece of bread with some care first fitting it in place and then tamping it in solidly with its bill, the other merely dropped its loads into the crevice.

Corvus corax principalis Ridgway

Northern Raven

Winter visitor of rather rare occurrence

The Raven is more or less familiarly known under that name to local guides and hunters about Lake Umbagog, some of whom assert that it appears there sparingly almost every winter, others that it is seen only at rare and irregular intervals. Early settlers of the region whom I used to know and question on the subject before 1880, were wont to claim that the bird had occurred much more commonly in the days of their youth, which seems not improbable. My personal observation of it in the neighborhood of the lake has been limited to two occurrences concerning which the journal furnishes the following accounts:—

1883, October 23.— Early this morning we launched our boat at the Lower Megalloway landing and started down river just as the sun was rising above the tree tops but before it had begun to melt any of the hoar frost that had gathered over-night, encrusting every exposed surface of branch, twig, grass blade and weed stalk and whitening the entire landscape as far as eye could reach. Nor was the river pathway that we followed much less white, being enshrouded in steam-like wreaths of gently swirling mist. Everywhere above and around us the windless air teemed with floating particles or motes of frosted moisture, flashing and sparkling in the sunlight like myriads of tiny diamonds. Altogether t'was a wondrous show, worth journeying far to see, but unfortunately not of long duration. After the fog wreaths had mostly vanished we were paddling slowly down stream, perhaps half a mile below the landing,

when the hoarse voice of a Raven fell on our ears. A few second later the bird appeared on wing, almost within gun range and low over the river. Crossing it obliquely he entered an ash swamp, twisting and winding among the crowded tree trunks and branches until lost to sight. During the entire time that he remained within ear-shot his raucous *cr-raw*, *cr-raw*, or *cr-ruck*, *cr-ruck* notes were uttered almost incessantly. He looked scarcely bigger than a Crow and had similar, but swifter and more erratic, flight.

1888, October 7.— While shooting in the neighborhood of the Outlet this forenoon I heard the loud outcry of a Raven, coming very distinctly across the lake from the direction of Pine Point where we afterwards saw the bird flying restlessly back and forth along the wooded shore. He called *cr-r-uck* and *ow-ow*, by turns. Rain was falling ceaselessly and heavily all the while.

Corvus brachyrhynchos brachyrhynchos Brehm

Eastern Crow

Common at seasons of migration; less so in summer;
altogether absent in winter
March 9, 1904 (Bethel)–November 12, 1904 (Bethel)

Crows are unknown to spend the winter in the Umbagog Region. At that season I have never noted them much nearer it than about the shores of Casco Bay. Migrating either thence or from still further southward they are the first "harbingers of spring" at Bethel, Maine, being accustomed to reach there in advance of even Bluebirds and Song Sparrows, usually about the 10th of March. Their abrupt and general reappearance, after the prolonged period of total absence, is no less impressive than interesting to witness. For in the course of a single morning they often overspread the entire country, proclaiming their numerous presence by vociferous cawing which sometimes disturbs the slumbers of village people ungiven to equally early rising. As the snow then ordinarily covers the ground to a greater depth than at any other time of the year the Crows experience much difficulty at first in obtaining even a scanty supply of food. Some seek it where the surface of the ground is kept partly bare by exposure to sun or wind; others about the mouths of drains and along the courses of swift-flowing brooks. But most depend chiefly for subsistence on apples left hanging over winter on the trees, the frozen pulp of which is greedily devoured by the half-famished birds. To obtain it they will invade orchards close about houses, scattering rejected fragments of it

profusely there over otherwise spotless areas of deep, untrodden snow. Many of them doubtless push on northward without much delay, at least as far as Lake Umbagog, but that I cannot testify to from personal observation. They breed sparingly, in widely scattered pairs, throughout the forests that surround the lake, oftenest not far back from its shores on densely wooded points or islands where their nests are usually built in evergreen trees. Although accustomed to seek food mostly in neighboring farming country they also forage for frogs and stranded fish along the water's edge in stub-fringed coves, especially after the spring freshets have subsided. Here as elsewhere they, with their young, congregate at nightfall in July and August to roost together in the same locality — commonly one densely wooded with coniferous trees and bordering closely on the lake near which there is apparently never more than a single place of assemblage thus frequented during any one season. Hence the birds resorting to it perhaps represent the total summer resident Crow population of the entire region immediately surrounding it. If so they are not very numerous for I do not remember ever noting more than one hundred, young and old, on any such occasion. Nor do they appear much more plentifully in autumn for most of the birds present then are evidently locally-bred and lingering ones, although scattered flocks of south-bound migrants, coming from further north, may be seen ocasionally in October. Such flights, with others of similar character that occur in spring, are inconsiderable, however, in comparison with those which take place annually at both seasons elsewhere in New England, especially along the seacost. In other words, it seems obvious that comparatively few Crows pass and repass on migration through the Umbagog Region. My field experience with them there has yielded no notes worthy of detailed mention except perhaps the following:—

1880, September 6.— A farmer living near the lake has two tame Crows which fly freely along its shores by day, returning to the house every evening.

1881, May 23.— Found a Crow's nest, containing four much incubated eggs, on a small wooded island lying near the Narrows of Lake Umbagog. It was about thirty feet above the ground, well concealed among the foliage of a tall and shapely balsam. The bird flew from it as my guide was climbing the tree. He brought it down, thereby enabling me to note that it was composed of sticks with an inner lining of Usnea moss and arbor-vitae bark.

1888, September 3.— Two Crows spend the greater part of each day in a tall dead tree by the lake shore whence they fly down every hour or so into a neighboring mowing field to feast on grasshoppers, now swarming there. They pursue these sluggish yet erratic-moving insects with ludicrous eagerness,

sometimes running, oftenest hopping, occasionally tripping and perhaps almost tumbling over because of awkward attempts to stop or turn abruptly. All this I have seen plainly with the aid of a strong glass.

1896, August 14.— While floating in a canoe this evening near the shores of B. Point I saw and heard Crows flying from tree to tree just within bordering forest but did not suspect there were many of them until upwards of a hundred took wing and circled overhead with deafening clamor. After thus berating me for a few moments they realighted and became silent. Shortly after this all rose together and crossed the lake to woods on its opposite shore, not to return — at least before dark. That they should thus have been frightened away so easily from what must be an established roosting place seems rather surprising.

1896, August 15.— The Crows returned to their roost on B. Point this evening and presumably spent the night there.

1897, June 8.— Found a Crow's nest, containing young, about thirty feet above the ground in a hemlock that stands near the lakeshore on Pine Point.

1897, June 10.— A pair of Crows, whose ire or suspicion was aroused by something that I failed to see, began hovering over a wooded point of the lake, cawing excitedly. Others soon hastened to the spot, invariably in couples, until ten were assembled there and making a great clamor. This number doubtless represents about all that are breeding within sight or hearing of the place.

ICTERIDAE

Dolichonyx oryzivorus (Linné)

Bobolink

Locally common summer resident
May 14 (1896)–August 31 (1895)

The song of the Bobolink is as familiar to farmers of the Umbagog Region as to those of eastern Massachusetts. It may be heard at the right season in almost every mowing field or grassy meadow bordering on the road that runs northward and westward for upwards of sixty miles from Bethel to Dixville Notch, past Newry, Grafton, Upton, Cambridge and Errol. Nor is this ever-delightful music less well-known to country people dwelling in settlements even more remote and forest-girdled such as those of Wentworth's Location through which the Magalloway River flows. The birds that utter it so joyously in May and June abound about the southern end of South Umbagog, especially on Upton Hill and in grassy intervales near Lakeside, where half-a-dozen or more of them may often be seen or heard

in the course of as many minutes. That they breed regularly in all these localities admits of no doubt although I do not remember to have ever happened on a nest. They appear most numerously at seasons of migration and then sometimes very high in air, flying due north or south over field and forest alike. Birds thus engaged must almost certainly be journeying to or from summer haunts lying further north yet not, perhaps, at any great distance from Umbagog. Instances of such elevated flight observed near Lakeside are mentioned as followings in the Journal:—

1895, August 31.— Early in the forenoon the *chink* notes of Bobolinks came faintly to my ears from overhead. Glancing up I soon perceived the birds, eight in number, whirling about at a height so great that they looked scarce bigger than grains of sand against the grayish-white sky. Had it showed blue instead not one of them could possibly have been seen.

1896, May 14.— Hearing the flight calls of Bobolinks migrating northward about 10 A.M. today I scanned the heavens above whence came these sounds, but failed to set eyes on any of the birds, who were, no doubt, beyond my range of vision.

The Bobolinks of Southern New England have been diminishing in numbers for thirty years or more. They no longer occur plentifully near Boston and further inland have almost if not wholly ceased to frequent many a broad expanse of meadow or upland grass formerly always enlivened by their glad presence in early summer. If those of the Umbagog Region have suffered corresponding decrease it cannot date back before 1903, for in June of that year I found them quite as abundant as ever in all their accustomed haunts, not only at the lake but also along the road leading thence to Bethel. Nor were they then less numerous than of yore throughout the far-reaching river intervale lands near the village of Bethel, always much favored by breeding Bobolinks.

Bobolinks seem disinclined to linger in the Umbagog Region after their young are strong enough of wing to migrate southward. Indeed I have never noted any of them there later than the end of August. During that month they come and go in small flocks.

Molothrus ater ater (Boddaert)

EASTERN COWBIRD

Very rare summer visitor

The only Cowbird which, to my knowledge, has ever been seen anywhere in the Umbagog Region was a male, closely viewed by me on May 29, 1876, while perched in the top of a dead tree standing near the old Lake House in Upton. Yet at least one other, and that of opposite sex, must afterwards have visited the same neighborhood for a nest of the Magnolia Warbler, taken there by Harry C. Bailey on June 7, 1880, contained an unmistakable egg of the Cowbird — besides four which the Warbler had laid.

Agelaius phoeniceus phoeniceus (Linné)

EASTERN RED-WING

Locally common summer resident
April 20–October 22 (1886)

The Umbagog Region is never without Red-winged Blackbirds in summer. Ever since my acquaintance with it began — now almost half a century ago — they have revisited it season after season, in numbers varying surprisingly little from year to year. Although confined to the immediate neighborhood of lakes and rivers, and not there plentiful or widespread, they frequent marshy shores and treeless islands so conspicuously that no one passing that way is likely to overlook them. Hence they become familiar to hunters and fishermen who fail to notice many another bird much commoner but of duller plumage and more retiring habits. The Red-wings occur most numerously about Lake Umbagog, especially in marshes near its southern extremity and western outlet. Even here it is unusual to encounter more than ten or a dozen adult birds in the course of a single day. Half that number are as many as one can often find in river meadows bordering on the Lower Megalloway or on the Androscoggin between the lake and Errol Dam. B. Meadows, just above the forks of Cambridge River, seldom harbor more than a single pair. Red-wings have bred regularly in all these localities for upwards of forty years, but

not, to my knowledge, elsewhere. It would be interesting to know how many of them the entire region ever includes at one time. Perhaps the total number thus present never exceeds two or three hundred even when the young are on wing in July and August.

I have seen the Red-winged Blackbird at Bethel as early in spring as March 25 (1904). Alva Coolidge has never known it to appear at Lake Umbagog before the middle of April and usually first sees it there between the 20th and 25th of that month. The lake is even then always ice-bound, except where rivers enter or leave it, and practically all the country about it still lies buried deep in snow. But every flowing stream runs free and patches of brown earth or withered grass show here and there on wind-swept ridges or sunny slopes. The Red-wings, with other similarly hardy, early-coming birds, are therefore not without opportunities of finding something edible, however scanty this may be. They fare better not long afterward for there is seldom any ice or much snow remaining later than May 10 or 15 — save in forest shaded places. Now is the season of spring freshets, fed by rapid-melting accumulations of winter-falling snows. They fill the lake to overflowing and more or less deeply submerge neighboring lowlands subject to inundation and thousands of acres in total extent. All the Red-wings, both male and female, have by this time settled for the summer in haunts mostly under water and likely to remain so for the next three or four weeks. Such environment is not, of course, ill-suited to their tastes and may be preferred to any other. Here as elsewhere they delight to perch and sing, especially at morning and evening when winds are still, in isolated trees or bushes rising above the flood; nor do they seem otherwise than content to spend midday hours on wave-washed shores or among driftwood stranded in sheltered nooks, gleaning therefrom some portion of their daily food although this may be sought oftener and more profitably elsewhere, perhaps in farming country not far distant. Most of them breed on small, floating islands moored not within areas permanently covered by the lake but in bordering marshes which have every appearance of thus belonging to it, whenever completely submerged. The islands float only at such times but these keep ever level with the surface of the water, however quickly it may rise or fall, yet seldom shift otherwise than vertically, being too firmly anchored to solid ground beneath by tough, flexible roots which proceed from living bushes — and perhaps also medium sized trees — that overspread what are essentially buoyant rafts of vegetable matter for the most part long since dead.

Red-wings breeding on these island can therefore have nothing to fear from flood water, and may be equally secure from various predacious creatures that infest near-by shores easier of access, but are not always untroubled by the presence of Bitterns whom they evidently regard as dangerous neighbors, perhaps with good reason — for a hungry Bittern would probably not hesitate to gobble up anything so tempting as a callow young Blackbird should it happen to attract its notice.

The oddly-marked eggs of the Red-wing are laid at the lake during the first ten days of June, in nest of typical construction built only a few inches above the water-soaked surfaces of the islands, in sweet gale, Cassandra and other low-growing shrubs. The young appear on wing about a month later and soon afterwards unite with their parents in small flocks, to spend the remainder of the summer in marshes now free from water and covered with rank grass. Most of the Blackbirds migrate southward before the close of August but some often linger on even into September, and belated stragglers are occasionally seen after the middle of October.

Icterus galbula (Linné)

Baltimore Oriole

Casual visitor in summer

Although the Baltimore Oriole breeds commonly in Bethel village and sparingly thence northward for a dozen miles or more wherever large elms overspread the stage road leading towards Grafton Notch, its normal summer range cannot extend much further in that direction. For beyond the Notch I have noted it only twice in upwards of forty years. On the first occasion — June 13, 1879 — a comparatively dull-colored male paid a brief visit to an elm that shaded the Lake House at Upton, Maine, where, within a few feet of my open chamber window, he uttered several loud bugle calls before flying off over the river meadows. Eight days later — on the 21st of the month — I saw a similar-looking but silent male of the same species, flitting from tree to tree across a brush-grown pasture that slopes down to the opposite shore of Lake Umbagog, at the head of Sargent's Cove, in the township of Cambridge, New Hampshire. Both observations may or may not have related to the self-same Oriole — the two localities being less

than three miles apart. In either case the bird or birds must have been without mate or nest and wandering care-free through unfamiliar country — not far removed, however, from that regularly frequented by others of their kind in summertime.

Euphagus carolinus (Müller)

Rusty Blackbird

Not uncommon summer resident
April 15 (?)–October 27 (1885)

One cannot follow waterways of the Umbagog Region far in May or June without seeing or hearing Rusty Blackbirds. It is exceptional, however, to thus encounter more than half-a-dozen such birds during an all-day excursion by land or water. Being ungiven to breeding in colonies and mostly scattered in single pairs over a vast extent of wilderness comparatively remote and difficult of access they attract little notice except on the part of ornithologists, and even to these seem decidedly less numerous than the more familiar and conspicuous Red-wings and Crow Blackbirds, although doubtless exceeding the former and perhaps almost equalling the latter, in *total* numbers, because so much more widely dispersed. As they are among the earliest of all birds to reach other parts of New England in spring their general arrival at Lake Umbagog presumably takes place not later than the 15th or 20th of April but I have never had opportunity to observe them there much before the middle of May. By that time the migrant flocks have either gone further north or broken up, and all local-breeding birds are settled for the summer in haunts lying invariably not far from water and usually close to lake, pond, river or brook, whose annual spring overflow inundates bordering woods or thickets wherein the Blackbirds habitually seek food about the edges of shallow pools or among accumulations of floating or stranded driftwood. Caribou bogs or "muskegs" carpeted with water-soaked Sphagnum are also favorite places of resort. It was formerly supposed that they bred commonly, if not invariably, in flooded or very wet coverts, an impression confirmed by E. A. Samuels who, writing in 1867 of field experience "in the valley of the Magalloway River in Maine, in June, 1864," reported finding several nests of the Rusty Blackbird, two of which contained three eggs each. They "were all built," he stated,

"in low alders overhanging the water" and "easily seen at the distance of a few rods through the foliage". (Ornithology and Oology of New England, 1867, p. 351). This testimony was not forgotten by those of us who, only a few years later, began visiting that same region to collect birds and eggs. Season after season we spent precious hours of fleeting June days in swampy alder thickets frequented by Rusty Blackbirds yet never once set eyes on nest of theirs in such a place. The only one that any of us ever had the good fortune to discover was found by Edward Harrington, on June 7, 1876, not far from the Lake House and within one hundred yards of Cambridge River but on the crest of a ridge elevated at least fifty feet above the river, where a forest of noble white pines, cut many years before, had been replaced by countless young spruces, balsams, larches and arbor vitaes growing in dense clusters about sunny openings filled with ferns. The Blackbird was sitting on three fresh eggs in a nest built about four feet above the ground in a balsam sapling five or six feet tall, where it could not be seen distinctly without first parting the dense evergreen foliage. Its situation was then thought to be exceptional, but is not now so regarded; for other nests since found elsewhere in northern New England or the Maritime Provinces have almost all been similarly hidden among the foliage of small evergreen trees growing mostly on well-drained upland sloping down to near-by pond or river although sometimes rooted in moister soil perhaps not without some surface water. It is possible of course that the nests built conspicuously in alders which Mr. Samuels described may have been those of Rusty Blackbirds but most ornithologists now incline to believe that they probably belonged to Bronzed Grackles which often build in such a manner.

That the nest found by Mr. Harrington at Lake Umbagog was correctly identified admits of no doubt. He left it undisturbed for a day or two, hoping that another egg might be laid. This gave me an opportunity to visit it in his company. His first inspection of its contents must have caused the bird to desert it for she was never seen again in that neighborhood. So we took it with the presumably incomplete set of three eggs. All these specimens came into my possession shortly afterward. On re-examining them now I find that the nest somewhat resembles that of a Robin in size, shape and general appearance. It has a similar deep, perfectly rounded inner cup, neatly lined with fine grass and a few pine needles and encircled by thick walls of dried mud plastered on a framework of weed stalks; but externally it originally bristled with rather coarse twigs such as the

Robin seldom collects and of which only a few remain in place. Internally it measures three inches across at the top and two inches in depth. The eggs measure respectively .97 x .71; .95 x .70; .93 x .68. Pale bluish in color they are for the most part only faintly and sparsely spotted with purplish brown but two have a few darker and broader markings grouped about the larger ends. Although my notes state that all three were quite fresh when blown the large size of the holes drilled in them then suggest that this may not have been the case.

Most of the Rusty Blackbirds remain in or near forest-shaded breeding haunts throughout the entire summer and may even linger there until the time arrives to migrate southward in autumn, but some, at least, accompanied by broods of fullgrown young, usually begin to appear conspicuously about treeless shores of the lake before the close of August. They resort to such places oftenest and most numerously in September and October. During the first half of the latter month I have known them to congregate by hundreds on mud flats bordering the marshes at the mouth of Cambridge River and at the outlet of the lake. That does not happen often, however, or ever except during very dry seasons when the waters of the lake have fallen considerably below their average autumnal level. Most if not all of the Blackbirds thus assembling in October are probably migrants coming from further north, but those present during September may be mostly local-breeding birds. Comparatively few remain after the middle of October and the very last depart a week or ten days later.

Quiscalus quiscula aeneus Ridgway

Bronzed Grackle. Crow Blackbird

Locally abundant summer resident
April 15–October 27 (1885)

The Crow Blackbirds of the Umbagog Region are all typical Bronzed Grackles. Such, at least, has proved to be the case with every one that I have ever had opportunity to examine critically. They return from the South in spring about the middle of April and by the 10th of May are settled for the summer in breeding haunts chiefly confined to the shores of Lake Umbagog and those of broad rivers that enter or leave it. Hence their local distribution corresponds rather closely with that of the Red-winged Blackbird. The local breeding birds gather in large

flocks by mid August at the latest. Occasional large flocks seen in late September and early October may represent in part migrants from further north.

1909, JUNE 5.— At least 4 or 5 pairs of Bronzed Grackle are breeding in the group of balsam firs standing on the island by my boat house. I watched them for an hour or more today as they came and went across the water between the island and the mainland, bringing food in their bills for their young and taking away from the nest the white excreta of the young which they dropped into the lake as soon as they were well beyond the outer ranks of alders. The young in one of the nests must have been well-grown to judge by the loud clamor they set up whenever their parents appeared. I saw one female Grackle carrying nesting material into the firs but all the others appeared to have young. Yet it is only 22 days since the lake was encased with ice (it went out on May 14) and most of the country about it buried deep in snow. The Grackles appear to get most of their food in the farms of Upton Hill.

The Bronzed Grackles nesting on my island do not appear to agree with Dr. Fisher in considering the Broad-Winged Hawk an inoffensive bird, for I saw four or five of them leave their rookery today to pursue one of these Hawks across the lake with cries of indignation and alarm. They pressed him hard at one time forcing him to twist and double as they rose above and darted down at him in quick succession, striking with their bills at his head and back.

1909, JUNE 7.— As I have already noted, a little colony of Bronzed Grackle have young in the balsams on my island. There are several other pairs, I find, nesting in the tall white pines that shade the little red schoolhouse on the mainland. Yesterday and again today, I saw Robins chasing some of the Grackles with loud, excited cries and, no doubt, not without good reason. The Grackles prowl about everywhere in search of food, spending much time in walking about on floating logs and driftwood about the shores of the lake. Yesterday I saw a female fly in under the old Abbott Mill and remain there for two or three minutes searching among some half submerged slabs, probably for frogs or minnows.

1909, JUNE 9.— Soon after we had moved the boat house this morning I saw six Grackles coming across the flooded meadows from the boat house to our new anchorage, a distance of about 300 yards. They alighted all together on a boom that closes one of the channels of our present cove and remained there ten minutes or more watching us critically, evidently in the hope of getting more of our surplus bread and crackers. But none had been thrown out and after awhile our sable visitors flew back to their island. (Eight Grackles visited our cove on morning May 10, when I fed them on cracker fragments on the boom.)

1909, JUNE 8 (No. 2). — Several pairs of Bronzed Grackle are nesting in balsams on my Island. They are interesting birds, evidently keen-witted and observing and full of resources in the matter of obtaining food. When we first

came here on June 4th they were foraging chiefly in the farming lands on Upton Hill. During the past two or three days they have given most of their attention to the lake shores which the falling water is fast laying bare in many places. Nearly all the members of the colony spent the greater part of today on the floating logs and driftwood in Stony Brook Cove directly to the leeward of our house boat. I was puzzled, at first, to know what they could be getting there until Gilbert suggested that they might be attracted by various kinds of refuse food which he had thrown overboard early in the morning. On watching them closely through my glass I found that this was the case. I saw them inspect and peck at some orange peel and seize and devour pieces of bread. For a time they confined their attention to food that had reached the shore but while we were at dinner and during much of the afternoon they were hovering over the water not far from the boat and intercepting whatever acceptable morsels we sent that way. I broke several crackers into small fragments and cast them on the water. When the wind had drifted them a few rods, ten or a dozen Grackles collected over them, like so many Gulls or Fish Crows, hovering with dangling legs just above the surface and picking up the pieces rapidly and easily, just touching the water with their feet, but invariably taking the morsel in their bills. As they started to fly to shore, they drew their feet up under the body plumage *in front* about at the rear end of the sternum. This I saw distinctly, a dozen times or more. Some of the food thus obtained was taken to young in the nest on the island, but the greater part was devoured by the old birds soon after they reached the nearest shore. One brood of young left the next today and were fluttering about in the trees in the island, although they did not look more than half grown. Thrice during the day I saw almost the entire colony of Grackles pursuing a Broad-winged Hawk across the lake streaming out behind him like the tail of a comet. This was done without the least provocation on the part of the Hawk, who was merely flying sluggishly from shore to shore and did not even pass near the island. On one occasion a dozen or more Grackles chased the Hawk into some dense spruce wood. I saw them mob a Crow in similar manner. Thrice they in their turn were pursued by indignant Robins. Towards evening I noticed a Grackle who seemed interested in the Eave Swallow colony. He alighted on the roof of the boat house and remained there for fully five minutes perched on the edge of the roof whence he kept trying to peer in under the eaves where there were several nests. The Swallows showed no alarm at his presence. At length he flew quietly away. I have little doubt that he, with most of his brethren, is an arrant nest robber.

1909, June 11.— Eight Bronzed Grackles spent most of the day in our cove flying to and from it from the island in Stony Brook Cove. It was not less amusing than interesting, to see them ranged in a row along some boom logs waiting for food to drift their way from the house boat. We supplied it in plenty, and they fairly gorged themselves. They would intercept it long before it reached the boom, and hover over it as they picked the fragments, from the surface of the water. They seem to be getting more expert and daring

at this practice daily. Today I saw them dip their legs to the thighs in the water and repeatedly one immersed the lower half of its body, also, apparently floating on the water for an instant. The food was invariably taken up *in the bill* however. When a bird secured a piece he was often chased by another but in no instance robbed of his prize.

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AT HARVARD COLLEGE
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THE BIRDS OF THE LAKE UMBAGOG REGION OF MAINE

Compiled from the diaries and journals of William Brewster

BY LUDLOW GRISCOM

CAMBRIDGE, MASS., U. S. A.
PRINTED FOR THE MUSEUM
FEBRUARY, 1938

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Compiled from the diaries and journals of William Brewster

By Ludlow Griscom

CONTENTS

	PAGE
Pinicola enucleator leucura (Müller). Pine Grosbeak	528
Carpodacus purpureus purpureus (Gmelin). Eastern Purple Finch	529
Passer domesticus domesticus (Linné). English Sparrow	529
Loxia curvirostra pusilla Gloger. Red Crossbill	530
leucoptera Gmelin. White-winged Crossbill	532
Acanthis linaria linaria (Linné). Common Redpoll	533
rostrata (Coues). Greater Redpoll	533
Spinus tristis tristis (Linné). Eastern Goldfinch	534
pinus pinus (Wilson). Northern Pine Siskin	534
Plectrophanes nivalis nivalis (Linné). Eastern Snow-bunting	536
Pocœcetes gramineus gramineus (Gmelin). Eastern Vesper Sparrow	536
Passerculus princeps Maynard. Ipswich Sparrow	536
sandwichensis savanna (Wilson). Eastern Savannah Sparrow	537
labradorius Howe. Labrador Savannah Sparrow	538
Zonotrichia leucophrys leucophrys (Forster). White-crowned Sparrow	538
albicollis (Gmelin). White-throated Sparrow	539
Spizella arborea arborea (Wilson). Eastern Tree Sparrow	540
passerina passerina (Bechstein). Eastern Chipping Sparrow	540
pusilla pusilla (Wilson). Eastern Field Sparrow	541
Junco hyemalis hyemalis (Linné). Slate-colored Junco	541
Melospiza melodia melodia (Wilson). Eastern Song Sparrow	542
lincolni lincolni (Audubon). Lincoln's Sparrow	542
georgiana (Latham). Swamp Sparrow	545
Passerella iliaca iliaca (Merrem). Eastern Fox Sparrow	545
Pipilo erythrophthalmus erythrophthalmus (Linné). Red-eyed Towhee	546
Hedymeles ludovicianus (Linné). Rose-breasted Grosbeak	546
Passerina cyanea (Linné). Indigo Bunting	547
Piranga erythromelas Vieillot. Scarlet Tanager	547
Progne subis subis (Linné). Purple Martin	548
Petrochelidon albifrons albifrons (Rafinesque). Eastern Cliff Swallow	549
Hirundo erythrogaster Boddaert. Barn Swallow	551
Iridoprocne bicolor (Vieillot). Tree Swallow	553
Riparia riparia riparia (Linné). Bank Swallow	554

PAGE

Bombycilla cedrorum Vieillot. Cedar Waxwing 555
Lanius borealis borealis Vieillot. Northern Shrike 556
ludovicianus migrans W. Palmer. Migrant Shrike . . . 556
Vireo olivaceus (Linné). Red-eyed Vireo 561
philadelphicus (Cassin). Philadelphia Vireo 562
gilvus gilvus (Vieillot). Eastern Warbling Vireo . . . 564
solitarius solitarius (Wilson). Blue-headed Vireo . . . 564
flavifrons Vieillot. Yellow-throated Vireo 565
Mniotilta varia (Linné). Black and White Warbler 565
Vermivora ruficapilla ruficapilla (Wilson). Nashville Warbler . . 565
celata celata (Say). Orange-crowned Warbler . . . 566
peregrina (Wilson). Tennessee Warbler 567
Compsothlypis americana pusilla (Wilson). Northern Parula Warbler. 568
Dendroica tigrina (Gmelin). Cape May Warbler 568
aestiva aestiva (Gmelin). Eastern Yellow Warbler . . 570
caerulescens caerulescens (Gmelin). Black-throated Blue Warbler 571
coronata (Linné). Myrtle Warbler 573
magnolia (Wilson). Magnolia Warbler 574
pensylvanica (Linné). Chestnut-sided Warbler . . . 575
castanea (Wilson). Bay-breasted Warbler. 576
striata (Forster). Black-poll Warbler 579
fusca (Müller). Blackburnian Warbler 580
virens virens (Gmelin). Black-throated Green Warbler . 581
pinus pinus (Wilson). Northern Pine Warbler . . . 582
palmarum palmarum (Gmelin). Western Palm Warbler . 582
hypochrysea Ridgway. Yellow Palm Warbler . 582
Seiurus aurocapillus (Linné). Oven-bird 583
noveboracensis noveboracensis (Gmelin). Northern Water-Thrush 583
Oporornis agilis (Wilson). Connecticut Warbler 586
philadelphia (Wilson). Mourning Warbler. 586
Geothlypis trichas brachidactyla (Swainson). Northern Yellow-throat . 587
Wilsonia pusilla pusilla (Wilson). Wilson's Warbler 588
canadensis (Linné). Canada Warbler 588
Setophaga ruticilla (Linné). American Redstart 589
Anthus spinoletta rubescens (Tunstall). American Pipit. Titlark . 590
Dumetella carolinensis (Linné). Catbird 590
Toxostoma rufum (Linné). Brown Thrasher 591
Troglodytes aëdon aëdon (Vieillot). Eastern House Wren . . . 592
Nannus hiemalis hiemalis (Vieillot). Eastern Winter Wren . . 592
Certhia familiaris americana Bonaparte. Brown Creeper . . . 594
Sitta carolinensis carolinensis Latham. White-breasted Nuthatch . 596
canadensis Linné. Red-breasted Nuthatch 597

PAGE

Penthestes atricapillus atricapillus (Linné). Black-capped Chickadee . 600
hudsonicus littoralis (Bryant). Acadian Chickadee . . 601
Regulus satrapa satrapa Lichtenstein. Eastern Golden-crowned Kinglet 602
Corthylio calendula calendula (Linné). Eastern Ruby-crowned Kinglet 603
Hylocichla mustelina (Gmelin). Wood Thrush 603
fuscescens fuscescens (Stephens). Veery 604
minima minima (Lafresnaye). Bicknell's Thrush . . 606
aliciae (Baird). Gray-cheeked Thrush . . 606
ustulata swainsoni (Tschudi). Olive-backed Thrush . . 607
guttata faxoni Bangs and Penard. Eastern Hermit Thrush 609
Turdus migratorius migratorius Linné. Eastern Robin . . . 611
Sialia sialis sialis (Linné). Eastern Bluebird 611

Supplement 613
1. Mr. Brewster's visits to Lake Umbagog 613
2. Gazeteer of localities 614
3. Recent field work at Lake Umbagog 616
4. Summary of outstanding ornithological results . . . 619

FRINGILLIDAE

Pinicola enucleator leucura (Müller)

PINE GROSBEAK

Highly irregular; always rare as a summer resident; often common to abundant in fall and winter; entirely absent in some seasons.

The Pine Grosbeak is so irregular in the Umbagog Region that its status in all years when present is given in chronological order.

1874.— obviously nested, as juvenals in first plumage were collected in late August and early September.

1882.— several seen and heard October 20 and 21.

1884.— observed daily in small numbers from October 15 on.

1886.— two heard October 23.

1888.— several birds September 25–October 11.

1889.— noted the first Grosbeaks October 5th. After the 15th they were seen or heard daily. They were generally distributed over the whole country, in the dense forests quite as much as about the edges of openings. October 24th I saw a flock composed of four males all in full red plumage. They are tame birds, gentle and unsuspecting, but restless, flying a great deal and alighting chiefly on the tops of small spruces. They come readily to the imitation of their whistling call. I was unable to ascertain on what they were feeding. They did not seem to frequent any particular kind of trees; nothing recognizable found in the stomachs of specimens killed.

1893.— several birds September 26–October 13.

1894.— one on October 1.

1896.— one on May 13; none could be found during June; one on August 26. however.

1898.— one on September 19.

1902.— a few in early January at Bethel.

1903–04.— abundant from December 11–March 26 at Bethel.

1904.— three on November 13 at Bethel.

1907.— in small numbers at Bethel during January.

Carpodacus purpureus purpureus (Gmelin)

EASTERN PURPLE FINCH

A common to abundant summer resident, always common and abundant in fall; usually leaving about the middle of October; only one definite wintering record.

May 10, 1897—November 13, 1904; February, 1886.

The most interesting thing about the Purple Finch in the Umbagog Region is the change in its breeding habitat preferences. This is graphically brought out by the following extracts from Mr. Brewster's diaries.

1879, JUNE 16.— This bird, like the Robin, is found everywhere throughout these forests, often many miles from any clearing. The songs of all the males here differ markedly from those of Massachusetts birds, in being shorter, and possessing a wild, ringing tone that makes them on the whole more beautiful, if more abrupt and less finished.

1896.— common around Bethel, chiefly about the village. Rather common about the foot of the Lake but decidedly uncommon near its head. Evidently prefers clearings with pasture, spruces and balsams of 15 to 30 feet to the primitive forest with its taller trees.

At Umbagog the song is nearly always very short, like that of some Massachusetts birds which begin and break off suddenly. In fact I do not remember hearing a single bird give the long song. The voices of the Umbagog birds, however, are richer and wilder than those of Massachusetts Purple Finches.

Passer domesticus domesticus (Linné)

ENGLISH SPARROW

Common resident at Bethel in later years; a rare visitor to Lake Umbagog.

It is so unusual to find a region in the eastern States where the House Sparrow is a bird of note that the records are given in full.

1885.— Two birds October 21–27.

1887.— Two on September 21.

1896.— A female May 13–15; the same or another on August 9. On May 13th, 14th and 15th an English Sparrow (♀) frequented the balm o'gilead tree in front of the hotel. I did not see her afterwards, nor did I see any of her kind about the Lake House. On June 14 I drove from Lakeside through Dixville

Notch to Colebrook. The first Sparrows seen were about farm houses midway between the Notch and Colebrook. They continued thence all the way to Colebrook, where they were rather numerous in the village proper.

1900, on. — common resident at Bethel.

1907.— one female, July 29–31, directly in front of hotel at Lakeside.

Loxia curvirostra pusilla Gloger

Red Crossbill

Irregular resident and visitant, sometimes abundant often absent for several years; breeding in winter, early spring, late summer or early autumn.

The erratic occurrence of the Red Crossbill is graphically shown in the following chronological history:

1871.— Absent.

1872.— Absent until late fall.

1873.— Abundant and generally distributed; breeds early June.

1874.— Scarcely any left; only 2 flocks noted entire summer.

1875.— Largely absent.

1876.— A few small flocks, June 10–Sept. 1, the arrival date unknown.

1877–78.— Absent.

1879.— Arrives in numbers in late fall, wintering abundantly.

1880.— Abundant, breeding in late April and early May; the White-winged Crossbill abundant during winter, a few pairs remaining and breeding in late May and early June.

1881.— No Crossbills.

1882.— White-winged Crossbill common from early October on; no Red Crossbills.

1885.— Very abundant; breeds early October; cones exceptionally abundant; White-winged Crossbill arrives in late fall; both species abundant all winter.

1886.— Many Red Crossbills breed early February; many others breed early March; a few White-wings breed early February.

1887.— Red Crossbill continues abundant; a very few White-wings remain and breed early September; the Red Crossbill positively not breeding during the summer and early fall.

1888.— A few scattered flocks in September.

1889.— Abundant Sept. 4–October 25; White-winged Crossbill arrives Sept. 1 and becomes common by the middle of October.

1890.— Both species depart prior to June.

1891–92.— Both species absent.

1893.— A few small flocks in September and October.

1894.— Small flock August 29.

1895.— Arrival date unknown, but abundant, breeding in late August; the White-winged Crossbill present in small numbers, breeding in late August and departing in late September.

1896.— Continuously common from preceding year, not breeding between early May and mid-September; the White-wing arrives August 10 and becomes common.

1897.— Continuously common from preceding year; one small flock of White-wings September 26.

1898.— Vagrant flocks three times in September; White-winged Crossbill arrives August 23.

1899.— No Crossbills of either species until fall; both arrive on September 22, and country flooded with them thereafter.

1900.— Two records in September.

1901–2.— No Crossbills.

1903.— Arrival date unknown, but abundant from May on, breeding in early June.

1904–5.— No Crossbills.

1906.— Two records in June.

1907.— Fairly common in July and August, no evidence of breeding; one flock of White-wings August 6.

1885, October 9.— Very abundant ranging restlessly about over the woods in flocks of four to thirty, seldom alighting. Seen several times in firs and spruces (always tall ones) at work on the cones, of which there is an exceptionally abundant crop this season, the tops of many of the trees being hung so thickly with the brown masses that they look as if scorched by fire.

Early every morning Crossbills come in numbers to the brick chimney of a shop here and cluster about its top, many clinging to the sides but the majority ranged about the top where they are enveloped in smoke in which they dance up and down with quivering wings in evident enjoyment. The owner of the shop tells me that they come to the chimney regularly through the winter. Note that more come on cold than on warm mornings and that they never stay later than 10 A.M. while usually all are gone by 8 A.M. Believe they come simply to get thoroughly warm.

On still, frosty mornings often hear the ♂'s warbling in a low undertone. High notes are sweet and liquid but the performance is never finished or complete. I think they are simply practising.

On October 16 I shot a young bird in first plumage but beginning to assume the autumnal dress.

Loxia leucoptera Gmelin

White-winged Crossbill

Irregular resident and visitant; abundant much less frequently than the Red Crossbill; equally erratic in its breeding season.

1874.— flocks August 25 and September 7.

1876.— two seen June 5.

1880.— Pair shot "evidently just finished breeding," on May 25; flocks September 8 and 13.

1882.— noted daily from October 8 on.

1883.— flock on October 31.

1886.— fairly common and breeding in February.

1887.— present in late September; birds shot had recently finished incubating.

1889.— fairly numerous from September 1 on.

1890.— one bird on October 22.

1895.— noted regularly from late August through September, breeding in late August, decreasing from early September on.

1896.— flock May 30; flocks from August 10 on.

1897.— flock on September 26.

1898.— flocks August 23 to September 3.

1899.— country flooded with them September 22 on.

1907.— small flock August 6.

1889, Oct. 19.— These Crossbills have been fairly numerous since September 1st. They always seem to be flying, however. Their *cha-cha., ink, ink* is a sound that at once attracts the ear. It is uttered incessantly when a flock is on the wing. This morning, at 7:30, I heard from a flock passing low over our camp a singularly beautiful snatch of song, evidently given by one bird alone. It was very like the song of *Regulus calendula* and to my ear even sweeter. The *cha-cha* cry is scarcely distinguishable from the flight note of *Acanthis linaria*. These Crossbills are fully as restless as *L. minor*. They seem to have regular beats or routes which they travel every day. Thus the flock noted October 19th regularly passed our camp every morning at about the same hour. They alighted somewhere behind it, and after feeding ten minutes or more took wing again. Like the Red Crossbill they are absolutely silent when feeding. Just before starting to fly one or two birds begin to call, others join in and finally with a general outcry the flock are off. Their flight is undulating, and they fly in a loose scattered flock. As far as I observed this season, they feed entirely on the seeds of the spruces. I shot two on the 24th, in a black spruce among cones and on the 26th saw a flock feeding on white spruce cones in a swamp. They rarely spent more than three or four minutes in one tree usually alighting in a cluster among the cones at the top, then as if struck by a panic whirling off again. Occasionally they would alight in the top of a tall dead pine. I saw one hang head downward and then climb out under a dead branch using its bill like a Parrot.

Acanthis linaria linaria (Linné)

COMMON REDPOLL

Irregular winter visitant, often abundant
October 11, 1882–March 26, 1903

The infrequency of Mr. Brewster's visits to the Umbagog Region in late fall and winter make it impossible to give a detailed account of this species. In the 80's however, when the region was visited regularly at the proper season, the frequency of its arrival is clearly indicated.

1882.— the first on October 11.
1883.— the first on October 23.
1884.— one on October 21; several flocks on the 29th.
1885.— none.
1886.— the first on October 23.
1887.— none.
1888.— none.
1889.— the first on October 16; later common in flocks.
1890.— the first on October 14.

1889.— First seen October 16th; afterwards common in flocks of from five or six to twenty-five or thirty. Like the Pine Linnets they fed exclusively on the seeds of birches. They were generally distributed throughout the woods, and did not appear to haunt any particular kind of ground. Among eight which I shot from one flock were two adult males with rosy breasts. One of the birds shot at this time was only slightly wounded, and being put in a cage fed readily at once on bread crumbs as well as on birch seeds. It was very tame and seemed to be contented with its lot.

Acanthis linaria rostrata (Coues)

GREATER REDPOLL

One probable record of occurrence at Bethel

1907, JANUARY 30.— This bird was in an apple tree in Dr. Gehring's orchard in company with six Lesser Redpolls with which I had an opportunity to compare it at a distance of only a few yards. It looked almost if not quite as big as a Purple Finch and double the size of any of its companions. I heard it give both the flight chatter and the Canary-like call, both of which were louder and stronger than the corresponding notes of *A. linaria*. Its coloring appeared to be that of the Greater Redpoll and I have little or no doubt that it was a representative of that form although it is just possible it may have been a Holboell's Redpoll.

Spinus tristis tristis (Linné)

Eastern Goldfinch

Common to abundant summer resident; two records of wintering.

May 13, 1896 (and probably earlier) — November 20, 1904 (at Bethel); wintering at Bethel in 1900 and at Lake Umbagog in 1886.

In earlier years at Lake Umbagog the Goldfinch was a very common to abundant summer resident, and a nest was found July 30, 1873. Twenty-five years later it was apparently less common near the lake, but was still common at Bethel up to 1907. Around the lake it often left very early in the fall. In numerous years when Mr. Brewster spent the month of October there, it would not be recorded at all or not after October 10. All later dates than this in the diaries are from Bethel.

1887, Sept. 29.— A little further on (as we were paddling to the west shore of the lake from off the entrance to Sunday Cove) I picked up a *Chrysomitris tristis* that was floating dead on the water. It was still rigid and I suspect it lost its way in the fog early this morning and flew about until exhausted.

1907, July 26.— A Goldfinch singing on the wing at the height of the breeding season moves through the air in a perfectly level plane and hovers in a manner very different from that of its ordinary flight. Sometimes it describes a large and irregular circle, sometimes it proceeds almost or quite straight. Whatever be its course, it usually flies above the tops of the tallest trees, and beats its wings continuously but rather feebly, mounting after the manner of a butterfly. All the while it sings continuously and very sweetly its chanting strain. This over it descends to the nearest tree or telegraph wire to rest for a time before rising and singing again. I have repeatedly seen the singing bird closely followed by another which did not sing but which flew exactly like the first. In no instances, however, have I been able to determine the sex of the second bird.

Spinus pinus pinus (Wilson)

Northern Pine Siskin

Of erratic status; always common to abundant in fall; often breeding or wintering commonly; sometimes entirely absent at one season or another.

The irregularity of the Pine Siskin as a nesting species is proved as follows:— 1871, common; 1872, seen only twice; 1873, very abundant throughout, largely departing by early September; 1874, none; 1876, common; 1879, seen once; 1880, none until Sept. 2; 1888, common.

The actual breeding season is often quite protracted. June is the most frequent month, but in 1873, many birds nested in late June and early July, while other males just reached breeding condition in late July and early August.

1873, June.— Abundant everywhere in company with Gold Finches.

1873, July 27.— Very abundant about the house, and evidently breeding. The males sing freely, having a warbling song similar to that of the Gold Finch but not as sweet.

1873, Aug. 6.— To my surprise I shot today a young bird full grown but still in first plumage. Nevertheless this species seems to be also breeding now, as a male killed today was in full song. These Finches resort in flocks to the birches to feed on the seeds in the birch cones. In habits, song and flight at this season the Pine Finch strongly resembles the Gold Finch.

1873, Aug. 8.— Shot an adult female which evidently had long since finished incubating as the bare space on the breast was nearly grown over with new feathers.

1873, Aug. 9.— A male shot this morning was unmistakably breeding and yet full-grown young are about in considerable numbers.

1873, Aug. 18.— Shot two young birds in first plumage.

1873, Aug. 23.— The young are now numerous, and with the adults are fast collecting into large flocks. I think this species must breed about a week earlier than the Gold Finch, as only a few young of the latter are beginning to appear.

1873, Sept. 3.— These birds, so numerous a few days ago, have suddenly and almost entirely disappeared, and I think the Gold Finches are also fast leaving.

1873, Sept. 18.— They are about again in large flocks, which whirl restlessly over the woods, seldom alighting.

1873, Sept. 22.— Saw a few today.

1889.— A few solitary birds were observed in September, but no flocks until October 4th, after which they were seen almost daily, some of the flocks containing upwards of one hundred birds each. They were feeding exclusively on the seeds of birches. They were tame, but restless, flying a great deal. Like the Redpolls, when in large flocks, they flew in very compact order. On one occasion, in October, I heard the peculiar, trilling note which I have always considered one of the songs of this species.

1907, July 22.— The village of Bethel has been swarming of late with Pine Linnets. I see or heard them constantly, whenever I stroll down the street that leads to the post office, usually in the tops of the elms and sugar maples. Today I found two feeding on the ground under an elm. Both were adults and I think a pair. They were eating seeds but of what I could not determine although I think they were the fallen seeds of the elm. Most of the birds I see are in small flocks. As a rule they give only the chattering flight calls but once today I heard the shorter form of song which may be closely rendered thus — *Swee-e-e-e-e* given with a rising inflection:

1909, June 11.— Soon after sunset a Pine Linnet, perched in the top of a White Pine near the lake shore on the knoll behind the Lake House, sang practically without cessation for fully five minutes. Its song was not unlike that of a Goldfinch but feebler, higher-pitched, and decidedly less musical, most of the notes having a wiry or metallic quality. At times it reminded me strongly of the long, twittering song of the Barn Swallow, with which I had several chances to compare it directly, for two or three of these Swallows came circling overhead before the Linnet had ceased singing.

Plectrophanes nivalis nivalis (Linné)

Eastern Snow-Bunting

Of regular occurrence in late fall, often in numbers; status at other seasons unknown, but reported from Bethel in mid-winter.

October 11, 1882, earliest arrival date.

1882, Oct. 8–22.— A single bird seen and heard October 11th. A flock of over one hundred seen by C. F. Batchelder October 26, feeding on mud-flats.

1889.— Large flocks observed during the last half of October alighting on the marshes, where they fed on the seeds of a species of *Scirpus*. They also visited a ploughed field at Lakeside.

Poœcetes gramineus gramineus (Gmelin)

Eastern Vesper Sparrow

Fairly common summer resident around Bethel and in the cleared country along the stage road to Upton and Lakeside; very rare breeder near the lake, of occasional occurrence in fall.

May 10, 1897 (Bethel)–October 5, 1890

[Passerculus princeps Maynard]

Ipswich Sparrow

One erroneous record.

N. C. Brown (Bull. Nuttall Orn. Club, **2**, 1877, p. 28) recorded an Ipswich Sparrow seen by him on Oct. 9, 1876. He later withdrew the record (Auk. 1896, p. 84).

Passerculus sandwichensis savanna (Wilson)

EASTERN SAVANNAH SPARROW

Abundant summer resident in the cleared farming country south and west of the Lake, breeding sparingly in the pastures and meadows near the Lake. May 10 (and probably earlier)–October 21, 1884

The Savannah Sparrow starts nesting almost upon arrival. Thus, in 1896 two birds were seen May 11 near Bethel, the species was abundant on the 12th, a finished nest was found on the 15th, it contained two eggs on the 21st, and was collected with four eggs on the 26th! In late summer and fall they gather in the river marshes, and swarm in September, with very few left in early October.

1896, AUG. 10.— The Savannah Sparrows are still on their breeding grounds in the uplands fields and pastures. The meadow at Lakeside is alive with them. No doubt they will take to the river marshes as soon as the water falls sufficiently to make these grounds attractive to them.

1903, JUNE 15.— I was particularly impressed by the great numbers of Savannah Sparrows in the grass fields and pastures between Errol and the Notch. They seemed to be everywhere, on high dry hillsides as well as in the moist intervale meadows along the course of the river. They were singing freely but also carrying food in their bills for their young.

1907, JULY 24.— A Savannah Sparrow perched in a bush by the woodside near Lakeside Hotel and evidently anxious about young which must have been concealed in the grass field beyond the fence, called *tsup, tsup*, incessantly as long as I remained near at hand. This note was very like that of a Juneo.

1907, JULY 25.— What was evidently the same bird for it was perched on the same twig did not ever give the *tsup* note today, but instead called *tit, tit, ti-ti* or *tit, ti-ti-ti*. This chirping bore some resemblance to that of a Chippy, but was sharper and more wiry.

Another bird in the Sargent Clearing this evening used the same *tit* or *ti-ti* calls. It was at first in a leafy tree and afterwards on the rock nearby. It seemed even more anxious than the bird at Lakeside.

1907, JULY.—Savannah Sparrows are very common and generally distributed throughout the hillside pastures and grass fields in Upton and Cambridge. In places they breed in what are practically small colonies. This is the case in the intervale on the Lake Shore, in front of Lakeside Hotel where, within the space of a few acres, one may start as many as ten or a dozen birds or hear several more singing at once. They sing very late into the evening and very early in the morning, as well as during cold rainy weather when most other birds are silent. The songs of the birds found about the lake seem to our ears less strident and more musical and varied than those which occur on the sea-

coast. They are very insect-like, however, and coming, as they often do, from beds of grass where the birds are concealed, are strongly suggestive of the chirping of crickets mingled with grasshoppers.

Passerculus sandwichensis labradorius Howe

LABRADOR SAVANNAH Sparrow

One record of occurrence in fall

This northern subspecies of the Savannah Sparrow was not recognized until years after Mr. Brewster's death. One specimen, now in the New England Museum of Natural History, collected at Lake Umbagog on Sept. 24, 1890, is definitely referred to this race by Peters and Griscom. It was collected in the State of Maine.

Zonotrichia leucophrys leucophrys (Forster)

WHITE-CROWNED SPARROW

A transient; only one year in spring; regular in fall, usually uncommon, exceptionally in great abundance.

May 12–17, 1896; Sept. 23, 1899–Oct. 13, 1884

1890, SEPT. 29–30.— On the afternoon of the 29th I saw four feeding on the ground by the side of a road. They flew into bushes along a fence when disturbed and were as skilful as most Sparrows in taking advantage of this shelter. Three of the four were adult birds. Just after sunset I walked through a large patch of weeds on the intervale in front of the house and started another, a young bird which I shot.

On the morning of the 30th I beat these weeds and a neighboring patch many times always flushing a number of White-crowns from each. There were at least eight young birds and two adults, & probably several more. They were shy as a rule rising thirty yds. or more ahead of us and flying directly to the bushes which bordered the open ground on three sides. In these they at once concealed themselves so effectually that it was difficult to get a sight at any of them. They occasionally showed themselves when I "screeped" but were much less responsive in this respect than the Song, Swamp & Lincoln's Sparrow with which they were intermingled.

They showed an especial fondness for brush heaps from which it was not easy to dislodge them. One, a *young* bird, sang a confused, warbling strain very like that of a young Song Sparrow. While thus engaged it sat on the top of a brush heap in the sun turning its head from side to side, its throat swelling.

Besides this song I heard two distinct notes, a strong Passerine lisp *exactly* like that of a Grass Finch and a short emphatic *whit* which I have described on a former occasion. The lisp was most frequently given today. It was easy to distinguish these Sparrows from all the others, even from *Z. albicollis*, by their great size and peculiar coloring. I found the white wing-bars one of the most conspicuous features in the case of the young. I should have noted that one of the young (the one overheard singing) was very tame permitting an approach to within three or four yards.

The flight of the White-crown is undulating and heavy but rather swift. The specimens killed were rather fat.

1895, Sept. 25.— I am uncertain as to the exact number of White-crowned Sparrows because I may have started the same birds once again in following up the flock but there were certainly not less than six for I counted five young birds together in one bush, and afterwards saw at least one adult. Ten or a dozen times while I was at this place I heard a White-crown sing. He must have been an old bird for his song rang out full and clear on the morning air. Indeed, it was louder and more finished than the spring singing that I have heard in Mass. As on former occasions it reminded me most of the songs of *Poœcetes*. These White-crowns were sluggish in their movements but nevertheless they were not sufficiently unsuspicious to let me get very near them.

1899, Sept. 30 to Oct. 2.— During both days the country between Newry and Upton, and on the 1st that immediately around Lakeside, was alive with White-crowned Sparrows. I must have seen in all upwards of 100, the greatest number on the 2nd. They were in small flocks (some of which also contained one or two White-throated or Song Sparrows) and were usually seen in patches of weeds or thickets of low bushes by the roadside. More than half of those that I examined closely were adults. Throughout the open country they probably outnumbered any one of the other species of the smaller birds, at least on October 2nd, which probably marked the height of the southward migration this year.

Zonotrichia albicollis (Gmelin)

White-throated Sparrow

Common summer resident, abundant during the fall migration
May 10, 1897–Oct. 30, 1884

The White-throated Sparrow is about two weeks behind the Savannah Sparrow in breeding, the earliest clutch of eggs on May 30, 1896. The song period wanes in early August and is continued exceptionally to the end of the month, but is, of course, resumed with vigor during the fall. At the commencement of the breeding season, the

species frequently sings all night long. Except in very mild seasons only stragglers linger into early October.

1895, Sept. 10.— Jim and I started off in the hunting boat at 8 A.M., crossing the lake to Richardson's Carry, which we reached just as the fog began breaking up. About midway of the passage we came upon a White-throated Sparrow floating dead on the calm surface. It occurred to me that these birds which we find drowned in the lake after foggy nights may meet their fate by descending through the fog at daybreak and striking the water before they make out what it is rather than by wandering about in circles until they become exhausted. This idea was suggested to me by the reflection that the color of the water when it is calm and enshrouded in fog is precisely like that of the fog itself. Looking down at the lake from a slight elevation I find that I cannot make out the water at all through the fog unless it is agitated by the swirl of a fish or by a breath of air.

Spizella arborea arborea (Wilson)

Eastern Tree Sparrow

Status in spring unknown; abundant fall migrant; very rarely wintering.

October 9, 1888–November 9, 1904; one bird January 9 and 20, 1901 at Bethel; also at Bethel December 14, 1903 and March 20, 1904, possibly the same bird.

Spizella passerina passerina (Bechstein)

Eastern Chipping Sparrow

Common summer resident in the cleared country, rarely found far into the woods.

Prior to May 10 (when already common)–Oct. 11, 1882; a straggler, October 31, 1884.

The earliest nest with clutch of eggs recorded is May 30, 1871. Only three times was this species recorded after October 5.

1896, May 14.— At this date the commonest sparrow (and one of the commonest land birds) about the lower end of L. Umbagog.

1896, May 18.— One came on hotel piazza caught a large black ant, bit off and rejected the head, ate the rest.

1890, Oct. 14.— M. (elvin) also had a Chipping Sparrow which he picked up dead in the lake. It doubtless lost its way in the dense fog early this morning and flew in circles until exhausted.

1897, June 14.— I recall (at Spelman's Point) a pair of Chipping Sparrows (the first I have found in the *forest* this season).

Spizella pusilla pusilla (Wilson)

EASTERN FIELD SPARROW

A very rare summer resident or visitant

All the local records for the Field Sparrow are given below:

1873.— One heard singing at Bethel, July 18.

1881.— One singing by the roadside about five miles north of Bethel, May 12.

1903.— One near Bethel on June 7.

1909, JUNE 12.— I added a new bird to the Umbagog list this forenoon — a Field Sparrow which I heard sing a dozen times or more about 100 yards northeast of the Lake House in a hilly pasture (formerly belonging to the Abbott farm) growing up to young spruces. The bird was perched in one of these and within twenty yards of me but I failed to see him until he took wing and flew over some tall spruces on the crest of the hill in the direction of the lake. His song was loud, ringing and in every way normal.

Junco hyemalis hyemalis (Linné)

SLATE-COLORED JUNCO

Common summer resident, abundant during the fall migration

March 21, 1887 (Mr. Hardy *in litt.*)–Nov. 9, 1904; earliest complete set of eggs May 21, 1896.

1876, MAY 30.— Near the bog on the Tyler road I came suddenly upon a female Snow-bird at work nest building. She bustled about among the leaves collecting large mouthfuls and arranging them in a hollow among some small firs. In no instance did she go over ten feet away from the spot in her search for these materials.

1880, MAY 24.— Three sets, four eggs each; one fresh, the other two incubated several days. The nests all in root banks placed almost exactly like those of *Seiurus naevius*. The females were all sitting; two of them skulked away when I was eight or ten yards away from their nests and then came hopping about on the ground making a show of feeding unconcernedly. The female of the third nest, the eggs of which were considerably further advanced than the others, sat more closely, permitting me to approach within a yard. She looked very pretty in her snug retreat with her neat drab plumage and fleshy-pink bill; when she started she began tumbling about on the ground as if wounded.

1882, OCT. 8–22.— Common during our stay. Their numbers perceptibly increased as the month wore on and by the 21st they were exceedingly abun-

dant. In a drive to Andover taken that day we estimated that we saw at least five hundred. They were partial to the edges of the woods and roadsides but were to be found everywhere, even in the depths of the forest.

1885, Oct. 9.— Numerous up to Oct. 21st, after which they diminished rapidly. On several still warm days I heard the ♂s singing in that peculiar low, soft, warbling strain heard in early spring. On the 21st as many as a dozen were all warbling at once in the top of a low spruce in the woods.

1884, Oct. 14.— While we were eating lunch (on Cambridge River) a female Junco (evidently a young bird as it was very rusty on the wings and pink on the sides) attracted apparently by our fire came hopping about literally within arm's length. I have rarely seen any wild bird so fearless and confiding. It often approached within five or six feet and when I flung a stick at it merely dodged without flying. It was pecking busily among the moss and fallen leaves, its bright little eyes glistening like black beads.

Melospiza melodia melodia (Wilson)

Eastern Song Sparrow

Very common summer resident, chiefly in cleared country
March 25, 1904–Oct. 27, 1884; earliest complete set of eggs May 16, 1896.

1897, May 31.— The Song Sparrow appears to be almost as widely distributed as the Tree Swallow, but it is not found far back in the forest but clings to the shores of the lake and to the river banks. We heard them singing in several places along the Megalloway as far up as Pulpit Rock.

Melospiza lincolni lincolni (Audubon)

Lincoln's Sparrow

Little known in spring; a regular fall transient, often quite common, if specially looked for.
May 15, 1896, and June 1, 1876; Sept. 11, 1889–Oct. 16, 1893

Mr. Brewster made a special study of this elusive Sparrow. His journals give such a vivid portrait of it as a migrant, that numerous extracts are presented below.

1889, Sept. 11.— Shot a ♂ in fine autumnal plumage at the western edge of the Sargent farm in a dense arbor-vitae swamp. My dog started it from the ground when it flew up into a bush over a heap of fallen logs. Although I could not see either color or markings I recognized the bird at once by its peculiar actions and shape. It jerked its tail up almost like a wren and showed a well-

marked crest. After the dog had passed it flew down to the ground again. I advanced and passed within five feet of the log heap stopping and examining it closely. Supposing it had moved on I hunted all the neighboring thickets and finally returned. As I was about to kick one of the logs the Sparrow flew up from among them and alighted on a twig within ten feet of me. This time it sat quite still looking at me curiously and apparently without fear. I backed off slowly and shot it. It was in thin flesh.

1890, Sept. 23.— We next skirted the edge of a great hillside pasture seeing a great number of Sparrows among which were two Lincoln's Finches. Both were flushed from fine dry grass in wet hollows. One flew into some bushes where I shot it, the other escaped into thick spruces and was seen no more . . . . The report of the gun (H. W. Henshaw had fired at a Flicker) started a Sparrow which flew about 100 yds. very much in the manner of a Savannah Sparrow and alighted in the short grass in a mowing field. Upon going to the spot I flushed it and I saw at once that it was a Lincoln's Finch and finally shot it in a brush fence in which it finally took refuge. As I was wrapping it up Don started another from a bunch of grass near me but it made a long flight and escaped.

1890, Sept. 30.— I had intended to spend the day in packing but seeing a large number of Sparrows in a patch of weeds on the intervale in front of the house I took my gun immediately after breakfast, and went down to have a look at them. One of the first that I started was a fine adult White-crowned Sparrow which I shot in a brush pile but could not find. Soon after this I saw several more White-crowns and shot a Lincoln's Finch. Encouraged by this I beat the weeds carefully many times in succession, driving the Sparrows from them to the bushes along the fences and by the lake shore where I could inspect them with comparative ease. Identified positively seven Lincoln Finches of which I shot four, and ten White-crowned Sparrows of which I killed one. All but two of the White-crowns were young birds. One of them sang a confused but very sweet warbling strain not unlike that of a young Song Sparrow. I could have shot most of these young White-crowned Sparrows easily enough had I wished to do so, but the old birds were shy.

1890, Sept. 23.— In a single clearing about two miles from Errol and four from Lakeside, H. and I positively identified four Lincoln's Sparrows and thought we saw two more. All were started in wet grassy places 100 yards or more from any trees or bushes. The first flew into a thicket on the edge of the woods where it joined a large flock of other Sparrows. We screeped a little when it came out and I shot it. The second rose from tall dried grass in a marshy hollow and took a long flight into some dense spruces where we failed to find it again.

Both of these were in a back pasture on a steep hillside. The next two were in a low lying and very wet intervale. One flushed at 20 yards and flew nearly 50 yards alighting again in short grass. It rose again as I approached and sought refuge in some bushes along a fence where I shot it. The fourth was flushed by my pointer from a tuft of dead grass in a wet run. It lay very close

rising within two feet of his nose and taking a long flight to the woods. Two of these birds flew very like Wrens, close to the ground, perfectly straight, with whirring wing beats. The third flew more like a Song Sparrow; while the flight of the fourth was so undulating and erratic that we mistook the bird at first for a Savannah Sparrow. All four were alone when first started and all were silent.

1890, Sept. 24.— We started and shot two Lincoln's Sparrows today in the hillside pasture behind Sargents. Both were in wet hollows among the same fine, dry, wild grass[1] in which we found some of these birds yesterday. One was alone, the other in company with a Song Sparrow. Both lay very close rising under foot and flying about 100 yds. The flight of one was level and whirring — almost exactly like a Marsh Wren's. The other flew like a Song Sparrow. One sought refuge in a bunch of ferns, the other in a brush fence.

1890, Sept. 30.— On the intervale between Lakeside Hotel and the Lake shore are two patches of cultivated ground which owing to neglect, are now densely covered with tall weeds which, ever since my arrival, have been thronged with Sparrows, chiefly Song and Swamp Sparrows with a few White-throats and Chippies and an occasional Savannah. I have beaten these places repeatedly for Lincoln's Finches but have found none until this morning when I saw at least seven, four of which I shot. All of them started from the weeds well out in the field and flew to the bushes and brush heaps along the border of the woods. I had no difficulty in distinguishing them from the Song and Swamp Sparrows. They lay closer than either and both sitting and flying looked smaller and slenderer. Their flight was peculiar and characteristic, very level, direct and rather swift yet feeble and whirring, like that of a Marsh Wren. On reaching the bushes they would at once disappear but I found it easy to call them out again by making a low screeping sound. When in the bushes they seem to be less active than the other Sparrows and addicted to sitting perfectly still for several minutes at a time. When alarmed or suspicious, however, they would jerk their tails up and sideways much in the manner of a *Geothlypis*. During the entire forenoon I did not once hear any of them make any sound whatever. There were ten or twelve White-crowned Sparrows with them.

1897, Sept. 15.— We (Purdie, Will and I) kept on pretty steadily up the Megalloway, stopping once or twice to take a photograph, however, and turning into Pine Hill Pond when we reached that pretty little sheet of water. I was adjusting my camera for a picture when I heard the Junco-like *tsup* of a Lincoln's Finch and presently saw the bird flitting about among some bushes on a narrow point. It was presently joined by two more, one of which came flying across the pond. All three chirped excitedly for several minutes. They were evidently alarmed at something but just what it was we did not discover. After I had taken my picture we rowed around the point and Gilbert landing beat it towards us. He started all three birds and I shot one of them but

[1] Specimen identified by Jos. Goodale as *Panicum capillare*.

ruined it for a specimen, having no shot smaller than #10 with me. I had a good view of the other two birds and identified them beyond any question. They behaved in the usual manner lying close and skulking about under fallen logs and tops. The place was very wet with long, wiry grass growing in the open spaces.

Melospiza georgiana (Latham)

SWAMP SPARROW

Locally common summer resident in suitable meadows and marshes, often very common in fall.

May 12, 1896–Oct. 31, 1884; earliest complete set of eggs May 29, 1879.

1879, MAY 29.— A nest containing four fresh eggs was raised about a foot above the ground by rank dead grass of last year's growth which formed a beautiful canopy over the whole. It was on the bank of the Cambridge River about a mile below the sluice.

1889.— Abundant up to about the 10th of October; a few seen as late as the 24th of that month. Every pleasant evening up to September 21st the males sang regularly after sunset, several often being heard at once. The last one heard singing was on the evening of October 5th. None were observed singing in the air. They haunted chiefly the marshes and borders of streams, but, on Sept. 11th, I saw a young bird in a belt of maples bordering a road on a hillside some distance from any water.

Passerella iliaca iliaca (Merrem)

EASTERN FOX SPARROW

Status in spring unknown; regular fall transient in varying numbers, sometimes uncommon, in other years abundant.

Sept. 30, 1889–Oct. 27, 1904

1882, OCT. 22.— Arrived October 10 when we saw three. Afterwards their numbers gradually increased, until by the 18th they were abundant. They were found more or less numerously everywhere but especially haunted solitary glens, often deep in the woods, where young spruces and firs grow thickly. They did not consort much with other Sparrows but occurred most frequently in little companies of three or four.

Pipilo erythrophthalmus erythrophthalmus (Linné)

Red-eyed Towhee

Very rare visitant

1880, June 12.— A male singing in a thicket opposite the post-office. I have never seen it here before.

Hedymeles ludovicianus (Linné)

Rose-breasted Grosbeak

Rather common summer resident, varying in numbers
May 15, 1896–September 15, 1900

The Rose-breasted Grosbeak is somewhat irregular near the northern limits of its breeding range just as it is well known to be near its southern limits. In many seasons Mr. Brewster found it fairly common and generally distributed. In 1879 there were hardly any near the Lake, but the bird was abundant in the woods just east of Dixville Notch. In 1880 and 1881 the species was encountered only once each year in the spring migration.

In years when the species was common as a breeder, there was often a marked fall migration in late August and the first days of September.

1873, Aug. 26.— They are getting numerous and evidently coming in from the north. I saw several small flocks today along the wooded banks of Cambridge River. They flew from tree to tree, usually alighting on the tops, and uttering the peculiar fall note already described.

1898, Aug. 30.— A young male with the entire breast suffused with pale rose color alighted in the pine in front of the camp and remained there for several minutes calling *tchick* and *peer*. The *tchick* was similar in form to the ordinary *chick* but very different in quality being soft and throaty. This is the note that I hear in July at home when the young birds are eating our cherries. The *peer* is used chiefly as a flight call during nocturnal migration. It is closely similar to the flight call of the Hermit Thrush. I do not hear either of these notes in spring.

1898, Sept. 5.— A heavy flight all night. Studying the flight call closely I find that it is subject to great variation. Sometimes it is throaty — almost guttural — again clear and sweet (*peer*); at times metallic (*pink*). The metallic form closely resembles the *chink* of the Bobolink.

Passerina cyanea (Linné)

INDIGO BUNTING

Formerly a regular summer resident; unrecorded after 1903
May 20, 1896–October 4, 1888

Mr. Brewster's diaries graphically bring out the retirement of this species from the northern limits of its breeding range, which lasted until 1935. In 1879 it was positively common at Lake Umbagog, and a dozen males were heard singing near Upton on June 20. There is no record of the species from 1879 to 1887. From then on to 1903, the bird was encountered in much smaller numbers during September or in late May and June, according to the season when the region was visited, and the record closes with 1903. In later years the species almost disappeared from the whole of New Hampshire and became a rare and local breeder west and north of Boston.

THRAUPIDAE

Piranga erythromelas Vieillot

SCARLET TANAGER

Rare summer resident
May 21, 1880–July 25, 1907

A very few Tanagers occasionally get as far north as Lake Umbagog. Only once did Mr. Brewster see two males in one day, his notes contain no record of ever having seen a female, and he never found a nest. Indeed the actual breeding of the species is presumption only, based on only two pieces of evidence. In 1880 an immature male was shot on June 19, and in 1907, a male was seen in late July, still in full song. All other records of the Tanager are in late May and early June, and might represent unmated spring stragglers.

1896, MAY 30, JUNE 4, JUNE 6.—The bird noted above (it was doubtless the *same* bird on each date) was the only individual seen or heard this year.

In a case of mounted birds in the hotel at Colebrook, N. H. was a ♂ Tanager in the yellowish phase. All of the dozen or more other birds in this case were species common to the region and no doubt the Tanager was a local specimen, also. The work was crude and evidently that of some country taxidermist.

HIRUNDINIDAE

Progne subis subis (Linné)

PURPLE MARTIN

At first uncommon, later common summer resident
May 12, 1896–Sept. 3, 1896

When Mr. Brewster first visited the Umbagog Region (1871), several pairs of Martins nested at Bethel in front of the hotel, and in August small flocks were occasionally noted over the lake or along the banks of the river. In 1896, the journal notes that "Martins have increased very greatly at Lake Umbagog (where there are no Sparrows) within the past fifteen years, but they nest in bird houses exclusively." By 1900 there were at least six breeding colonies in the region between Bethel, Norway, Lake Umbagog and Colebrook, N. H., and Martins were seen daily all summer until mid August. By 1903 the House Sparrow became a serious competitor for territory, and the Martin steadily decreased from 1903 to 1908.

1896, JUNE 14.— Four Martins were sitting in a row on the ridge pole of a barn near a large Martin-house on a pole in a garden. There was another Martin looking out of one of the holes of this box, but most of the compartments were occupied by English Sparrows.

Near the railroad station I saw a pair of Martins which were apparently nesting in a "witch's cap" over an electric lamp. The female went into the cap and remained there. I could see her head and portions of the nest protruding over the edge of the board in the top of the cap.

1896, AUG. 14.— At 3 P.M. I started for Upton sailing across the Lake, and up river to the mill as usual. I found the flock of Purple Martins by the Lake House landing increased to fifteen birds, about one-third of whom were old males. They kept alighting on and flying from the tall dead pine by the shore acting very like the Swallows at Lakeside. With them were 20 or 30 White-bellies and a few Barn, Eave, and Bank Swallows. The Martins occasionally gave the spring warbling notes. Just before sunset the whole flock of Martins and Swallows began circling over the river flying down and striking the water in quick succession.

1896, AUG. 17–23.— The Purple Martins do not associate with the other Swallows here excepting incidentally when they are seeking food in the same places as over the Lake or meadows. I have not seen a single Martin near Lakeside this month, but at the Lake House, up to the 16th, there were always from three to four to a dozen flying about and alighting on the tops of some

dead trees. A number of White-bellied Swallows sometimes accompanied them but the Martins evidently resented their approaches and frequently assaulted and drove them away. Since the 16th I have seen but one Martin (on the 20th) near the Lake House, but at Leonard's Pond on the 21st I observed three broods of young apparently just from the nest perched on tall dead stubs, where their parents were feeding them at short intervals.

Petrochelidon albifrons albifrons (Rafinesque)

EASTERN CLIFF SWALLOW

Always common, by 1896 abundant summer resident
May 12, 1896–Sept. 12, 1898

The increase of the Cliff Swallow at Lake Umbagog and its abundance there are graphically brought out in the selections from the journals reproduced below. In 1896 on Aug. 9, 10, and 11, Mr. Brewster estimated 800 birds seen daily!

1895, SEPT. 5.— But the most interesting sight was that of a flock of at least seventy or eighty Swallows which were skimming about over the open marshes. I detected one Bank Swallow and three or four Barn Swallows among them, but practically the whole swarm was made up of Eave Swallows. Faxon tells me that this species has been unusually abundant in Massachusetts this year. It would seem to have increased greatly here as well, for I never saw anything like so many about Umbagog before and I have rarely seen it at all so late in the season.

1903, JUNE 11.— I cannot remember ever seeing Eave Swallows before between Bethel and Upton, but there is now a good-sized colony at Poplar Tavern, where we counted twenty-eight nests attached to the west side of the barn under the eaves, and two smaller colonies above the Notch in Grafton.

1903, JUNE 13.— The Eave Swallows still cling to the old barn at the Lake House and the colony is bigger than ever. I counted no less than fifty-four nests most of which were on the south (gable) end of the barn securely supported by cleats. There were also a few on the east side where the birds nested exclusively in the 70's.

Another and smaller colony of these Swallows (no doubt an overflow from the other) has taken possession of my boat house (built in 1899) where there are now twelve occupied nests, most of which are at the gable end.

1903, JUNE 15.— Colony of Eave Swallows at Errol Dam. The colony of Eave Swallows was the largest I have ever seen in northern New England. I counted 95 nests on the front (gable) end of Allen's barn, two on the south side, four on the south side of the house, and fifty-four on the east side of the

dam under the projecting roof; in all 155 nests. Many of these were unfinished and some only just begun, but all that I included in my count showed unmistakable signs of progressing or very recent work.

Mrs. Allen told me that the birds have nested on the barn ever since she and her husband have had charge of the place (about sixteen years) but that they have increased rapidly in numbers during the past few years. She also said that this was the first season when any of them have attempted to build under the eaves of the long shed over the dam itself. The nests have a secure foundation there as well as in the gable end of the barn. Nearly all the finished nests were of the old-fashioned type, i.e. with well-marked bottle necks. The same thing is true of the nests I have examined lately (during the past week) at "Popple" Tavern and Upton. It is evident that the birds have increased and spread throughout the Lake region of recent years. The Allens tell me that a large colony has become established at Middle Dam. Despite the unusual number of nests at Errol Dam there were seldom more than thirty or forty birds in sight there at any one time today. Others were coming and going continually, however, and a considerable proportion of the total number seen were usually collected about a puddle of rain water in the road, collecting mud for their nests.

1896, Aug. 22.— At about sunrise this morning there were fully three hundred and fifty Swallows strung along on the wires of the fence in front of the hotel. I watched this flock for more than an hour (7 to 8 A.M.) and was amply repaid for the trouble. There had been a heavy rain during the night and the road was very muddy. The birds alighted about the edges of one of the larger puddles in great numbers and walked slowly about fluttering or quivering their half-opened wings like so many big butterflies. At first I supposed that they were drinking or picking up insects, but what was my astonishment to find that the *Eave Swallows* were filling their bills with mud, and the White-bellied and Bank Swallows gathering pieces of hay or straw. The Barn Swallows did not visit the pool in any numbers, and I did not happen to see them pick up anything. Each bird, on obtaining a satisfactory load of mud or grass, flew with it to the fence and after shifting it about in its bill for a few moments, finally dropped it and at once returned to the road for a fresh supply. From fifty to a hundred Swallows were thus constantly engaged for half-an-hour or more. Not one of them took its burden elsewhere than to the wire fence or retained it for more than two or three minutes after reaching its perch. What did it all mean? Two facts which remain to be recorded will, perhaps, explain.

The first is that, while the birds were clustered about the mud-puddle, scarce a minute passed when one or two pairs were not engaged in copulation. Perhaps I should say in attempted, rather than actual, copulation, for, as nearly as I could see, the sexual commerce was in no instance fully and successfully accomplished. The females (or at least the birds that acted that part) submitted willingly enough to, and in some instances, as I thought, actually solicited, the attentions of the males; the latter, however, displayed but mild

sexual ardor and were very clumsy in their attempts at indulging it. Once I saw an Eave Swallow and a White-bellied Swallow in sexual contact.

The second fact apparently supplies the key to the whole mystery. It is simply that every one of the Swallows which visited the mud-puddle and engaged in collecting mud and straw or in attempted copulation, *was a young bird!* Of this I made sure by the most careful scrutiny with a glass at a distance of only 15 or 20 feet. There were a few old birds in the flock, but they remained constantly on the fence.

It seems evident, therefore, that the remarkable behavior of the birds which alighted in the road was simply an expression of premature development, in the young, of the instincts and passions of nest-building and procreation. It is, however, the only instance of this kind that has ever come under my observation.

1909, June 8.— When I first visited my boat house on June 3 the Eave Swallows were only beginning the foundation of their nests. On the 6th none of the nests were more than one-half built. Today a dozen or more are apparently completed, at least externally. This morning as I was watching the birds I saw two come together in the air and whirl around and around straight down to the ground, where they remained for more than a minute, in what I took to be sexual union, waving and fluttering their wings like butterflies. The other members of the colony seemed actively interested in the affair, and, indeed, not a little excited by it, for they collected over the prostrate birds and dashed down almost to them, with loud cries. When the pair finally separated, one bird flew off in one direction and the other in another. I do not think it could have been a fight, for Eave Swallows are among the most peaceable and social of all birds and I have never known them show the slightest tendency to quarrel. Moreover I have seen Swifts copulate in precisely the same manner, although they do not often, if ever, remain so long on the ground together. The Swallows in this colony do not seem to be in the least disturbed by the dozen or more Bronzed Grackles which are nesting in some balsams that shade the boat house; nor do they pay the least attention to the Broad-winged Hawks which the Grackles mob every time they appear near the island.

Hirundo erythrogaster Boddaert

Barn Swallow

Very common summer resident
May 10, 1897–Sept. 13, 1898 and Oct. 6, 1888

One of the most marked features about the Barn Swallow is its evident early and abrupt departure southward, and the surprise with which a few birds are subsequently encountered at much later dates. Two extracts from Mr. Brewster's diaries bring this out very well.

1874, July 30.— I have seen none for two days and think they have left here.

1874, Aug. 8.— Still here.

1874, Aug. 25.— These, as well as all the other Swallows, collected into immense flocks today and disappeared.

1874, Aug. 29.— A few still remain, but I think all the other Swallows have left.

1874, Sept. 3.— A few still about.

1888, Sept. 4.— One seen, the last.

1888, Oct. 3.— Saw a barn swallow go to roost in the twilight among some low bushes on Moose Point. Next morning a bird, probably the same, was skimming over the marshes at the Outlet. We have had several snow squalls today.

1897, June 13.— Mr. Chandler showed me a Barn Swallow sitting on a nest placed under the roof of the piazza nearly over the front steps and within two or three yards of the front door of the house. The nest, which rests on a square timber about 8 ft. above the floor, was occupied two years ago by a Robin which reared a brood in it. Last year it was unoccupied. No one knows just when or by what bird it was built originally but it looks most like a Robin's nest and it has certainly been in its present position for three or four years. Of course the Swallows have added a feather lining.

C. tells me that the two Swallows take turns at incubating and change places every 15 or 20 minutes (I saw this for myself two days later). They pay no attention to the people walking or sitting beneath them and yesterday one of the young men, standing nearly under the nest, fired upwards of fifty shots from a rifle without disturbing the sitting bird.

1897, June 15.— On watching this nest for about an hour this morning I found that the parents shared the duties of incubation. The change which took place on an average of over every fifteen minutes was effected with singular adroitness. The incoming bird, twittering loudly, flew directly to the nest always aiming for the point where its partner's tail projected over the rim. Just as it reached it the sitting bird slipped out on the opposite edge. So quickly was it done that I doubt if a person looking down on the nest from above could have got more than the briefest possible glimpse of the eggs.

1908, Aug. 17. - I have long been in doubt as to the precise character or meaning of the prolonged series of twittering and other notes which the Barn Swallow indulges in so freely and which are so very pleasing to human ears. Many writers seem to regard them as representing the bird's song. In support of this are the facts that they seem to be uttered only by the male and oftenest in the breeding season. But I hear them now almost as frequently as in May or June, and I am by no means sure that they are used only by the male. There is the same activity with the Eave Swallow, for it is I think uttering all its various calls, but the "cork-in-the-bottle" ones are not heard now anything like so often as earlier in the season and they, I believe, do represent a song.

1896, Aug. 14.— A young Cooper's Hawk scaling across the field in front of the Lakeside Hotel was assailed by a number of Barn Swallows who dashed down upon it from above and picked its head most furiously. They kept aloof from it after it alighted on a fence post but continued to circle above it uttering their shrill alarm cries incessantly.

1907, July 23.— Early this morning I saw several Barn Swallows engaged in mobbing the Lakeside Cat who was crouched on the edge of the piazza. The Swallows were evidently solicitous about their young, which, however, were quite safe, being perched in a row on the telephone wire that passes the house. The parent birds to the number of four or five would dart at the cat in quick succession, coming in from the open field in front of the house at a height of only a yard or two above the ground and on nearly a level plane, not swooping down from above as Tree Swallows under like conditions, nor did they snap their bills as the Tree Swallow will when similarly engaged. As a rule they passed the cat well out of reach, but every now and then one came within a foot or two of her head. Whenever this happened she would strike at the bird with her right paw, but rather slowly and clumsily I thought and always without success. I have known cats that would have made more profitable use of such an opportunity.

Iridoprocne bicolor (Vieillot)

Tree Swallow

Locally abundant summer resident
May 11, 1897–Oct. 9, 1888

The erratic southward departure of the Tree Swallow closely resembles that of the Barn Swallow, but its stay averages a little later. In 1874 a large flock appeared on August 18, after the main body of summer residents disappeared three weeks earlier. In 1888 a flock appeared on September 1, with one straggler left on the 3rd, but on October 1, another flock appeared and remained until the 9th.

1876, June 5.— Upon shooting an *Ardea herodias* among the stubs, many Swallows came trooping to the spot and began playing with the feathers scattered about on the surface of the water.

1876, June 8.— A nest in a stub was beautifully lined with the feathers of *Bubo virginianus*.

1876, June 9.— Two nests, one with four and the other with five eggs; the former beautifully lined with feathers of the adult male Hooded Merganser.

1897, May 31.— Tree Swallows were nesting everywhere where there were many stubs. They evidently spread over this whole region unlike the Bronzed Grackles, which evidently congregate in colonies and of which we saw none up the river today.

1903, June 14.— Very few Stub Swallows compared to earlier times, but this is scarcely to be wondered at in view of the fact that the stubs have almost wholly disappeared from this part of the Lake. Most of those which used to stand along or near the river banks have either rotted and fallen or been cut by the lumbermen because they impeded the drives, but those which fringed the shores and especially the coves well back from the course of the river were cut, a few years ago, by the Upton people, for firewood.

Riparia riparia riparia (Linné)

Bank Swallow

Regular summer resident, one to several colonies
May 10, 1897–Sept. 5, 1895

The Bank Swallow was rarely noted by Mr. Brewster after early August. In 1896, however, an exceptional year for swallows, it was seen about the Lake throughout the month, a maximum of 50 birds on the 22nd. Even at that it was the least numerous of the five species except for the Martin.

1896, June 12.— Seen in moderate numbers over every part of the Lake when the weather was rainy or lowering. The nearest (in fact only) colony found was in the bank of Cambridge River just above Grafton Notch, by Watson, who on June 15 examined over fifty nests most of which had young.

1879, June 8.— The other day I saw a troop of a dozen or more playing with a feather. A strong wind was blowing at the time and as they passed it from one to another, each dropping it for his neighbor to pick it up, the party drifted away across the fields, reminding me of a crowd of excited school boys playing at football.

1902, Newry, Me.— On September 9th while driving with Dr. Gehring from Bethel to Andover, we saw by the roadside near an old saw mill in Newry an immense mound of saw-dust in which were a number (I counted twenty-nine) of Sand Swallows' holes. The saw-dust had evidently been accumulating for many years and most of it was dark-colored through long exposure to the weather and closely compacted. On two sides of the mound it had been carted away from time to time, leaving two vertical banks each about twelve or fifteen feet in length by four or five feet in height. The faces of these saw-dust banks were as smooth as those of any sand bank and much firmer. The Swallows' holes which were near the top were remarkably perfect in outline and of the usual depressed or elliptical shape. I thrust my arm into one which had been enlarged, probably by boys, but I could not reach the end.

1903, June 5.— Bank Swallows were scattered about in great numbers over the intervale this morning and their low pleasing chattering cries were con-

stantly in my ears. They must have a large breeding colony somewhere near, probably in the sandy banks of the Androscoggin. Fully 25 or 30 birds were circling about a hen yard on a steep hill-side. Every half minute or so one of them would swoop down to the ground and, picking up a white feather, start at full speed for the river pursued by the entire throng. In no instance did I see the fugitive succeed in making more than 50 or 100 yards before it was overtaken and robbed of its prize, and the robber in his turn was usually quickly despoiled. Sometimes the feather would be in the possession of a dozen or more different birds in the course of less than a minute. When this happened it made little or no progress towards its ultimate destination, being simply snatched and held for an instant by bird after bird while the remainder of the flock were flying around and around the contestants in a narrow circle. At length, however, some Swallow swifter or stronger than the others would get it and carry it straight off to the river bank closely followed by one or two birds while the others returned to the poultry yard. It was one of the prettiest sights of the kind that I have ever witnessed. I am by no means sure that the birds were not simply playing with the feather as the Tree Swallows certainly sometimes do under similar conditions.

BOMBYCILLIDAE

Bombycilla cedrorum Vieillot

CEDAR WAXWING

Common, occasionally abundant, summer resident
May 19, 1896–Oct. 12, 1889

The Waxwing does not arrive in numbers until the very last of May, excepting only the year 1896. There is no sign of any increase in numbers in fall, and the species was noted after mid September in very few seasons only.

1896, JUNE 12.— Common in clearings and in the forests of stubs about the Outlet and the mouth of Rapid River. Not found at all, apparently, in the living forest far back from openings on the Lake Shore. In small flocks up to June 10.

1896, JUNE 10.— Bird carrying huge bill full of sheep's wool from pasture into top of maple. Could see no mate.

1897, SEPT. 25.— The Cedar Birds were flying about the lower "logan," alighting in dead tree tops. I fancy the lateness of their stay is due to the heavy crop of Viburnum berries still remaining on the bushes.

LANIIDAE

Lanius borealis borealis Vieillot

NORTHERN SHRIKE

Regular fall migrant, wintering at least occasionally
Oct. 13, 1886–March 20, 1904

The Northern Shrike was always seen by Mr. Brewster in every season when he visited Lake Umbagog in October. Some years he would see two or three only, never more than six. As the region was never visited in early spring, the status of the species at that season is unknown.

1885, OCT. 23.— Two on the Lake Shore chasing one another through the branches of a birch uttering a harsh chatter and apparently fighting.

1885, OCT. 24.— One perched on the topmost branch of a tall dead pine in the woods sang steadily for at least fifteen minutes. Its song resembled that of a young Robin (in spring) but was even less varied. Approaching I found several Nuthatches (*S. canadensis*) and kinglets fluttering excitedly about the Shrike scolding vehemently. The Shrike took absolutely no notice of them.

1890, OCT. 26.— A Shrike making his peculiar harsh jarring cry among the stubs. Just as we landed he flew across the meadow (Sweat Meadow) and perching on the top of a tall stub began singing sweetly and continuously. Its song was very like that of a Brown Thrasher but a little lower and more broken. I have rarely heard one to such advantage before.

Lanius ludovicianus migrans W. Palmer

MIGRANT SHRIKE

Very rare summer resident, one pair in 1903 only

1903, JUNE 5.— The most interesting experience of the morning remains to be chronicled. I was returning over the intervale and within two hundred yards of the railroad when a Shrike (*L. l. migrans*) started from a maple and flew off up the road, carrying a bird in its bill. It alighted first on a fence post, next on a brush heap near the railroad. I got within twenty yards of it each time. As I was approaching it it worked busily and nervously, tearing at its prey and eating portions of it. Finally it circled back past me and flew out into a large field where it alighted on a fence post. Before I could get near it again it flew a fourth time leaving its victim which I found was a Bank Swallow.

It had eaten the head completely off and had impaled the loose skin of the lower neck on a sharp upright splinter that projected above the post. After examining the Swallow I walked off a few rods when the Shrike immediately returned to it and carried it off across the road to a small half dead willow that grew by a wall within fifty yards of a house. I followed and had the great pleasure of watching the Shrike impale the Swallow on a short, sharp stub of a dead twig. It performed this operation precisely in the manner of the Northern Shrike that I saw hang up a Field Mouse at Ball's Hill a dozen or so years ago, i.e. by drawing the bird *against* the stub. Standing a little below it it pulled violently and jerkily for several minutes often fluttering its wings either to keep its balance or to gain greater force and occasionally stopping to rest for a moment. Finally it flew away. On examining the Swallow I found it very firmly fixed with the prong driven through the skin and surface muscles of the breast. From a lower branch of the same willow and similarly impaled on a short dead prong driven through the skin of its neck hung a female Bluebird that had evidently been dead several days. It showed no signs of decomposition but the eyes had sunk almost out of sight and the flesh on the breast was hard and dry. It bore absolutely no signs of external injury and no portion of the flesh had been removed while the plumage was smooth and perfect.[1]

Just after the Shrike had left the Swallow impaled on the fence stake it was joined by its mate a larger, longer, lighter-colored bird, no doubt the male. In the afternoon I visited the place again in company with Dr. Gehring and again found both Shrikes. They were never actually together but seemed contented with keeping one another in sight as they sat perched on the fence posts or telegraph poles along the roadside sometimes within thirty yards of each other. We saw the male fly down to the dusty road and pick up what looked like a large beetle and the female pull a quantity of sheep's wool from the side of an empty barrel standing in a piece of cultivated ground. After arranging it carefully in her bill she took it up the road and into a maple near the one I started her from this morning. I looked this tree over carefully afterwards but could not see anything in it that resembled a nest. Probably the bird really went on beyond it to another tree.

Both Shrikes spent the greater part of the time when I was watching them within an area of about twenty acres. Most of this was perfectly open, intervale grass fields the only trees being those in the long row of planted, sidewalk sugar maples and a few scrubby willows, wild cherries, etc., scattered along the lines of the fences that divided the fields from one another. The Shrikes occasionally perched on some of these trees but their favorite points of observation were the fence and telegraph posts. In a general way they looked and behaved like Northern Shrikes but they appeared smaller and decidedly shorter and stouter while they were somewhat less active and restless. Their heads looked disproportionately larger and much thicker and heavier than those of their more northern relatives. The female was a dark, dull-colored bird, the

[1]The Swallow was gone at 4 p.m. but the Bluebird remained.

male much lighter with very white underparts and a clear ashy-blue back. The broad black stripe through and about the eye was conspicuous with both of them.

When perched they sat quite motionless save for a slow turning of the head from side to side. I did not once see either of them lift and half spread the tail as the Northern Shrike so often does. Their method of flight, however, was identical with that of *borealis* and their appearance when on wing nearly the same. I think, however, that they moved even closer to the earth. On leaving their perches, whether the latter were fence posts or telegraph poles, they invariably shot down at a steep angle, as if aiming at some object on the ground and then skimmed off swiftly across the field only a foot or two above the turf, rising and falling in long, graceful but gentle (or shallow) undulations, moving their wings very rapidly at the beginning of each upward curve and then closing them for an instant just as a Woodpecker or Goldfinch does when pursuing its similar "galloping" flight. During the exceedingly rapid beat of the wings their light markings were alternately displayed and concealed, giving a flickering effect as of a small bit of looking-glass flashed in the sunlight. Neither bird uttered any sound whatever within my hearing. They would not permit me to approach them much nearer than about twenty yards.

1903, June 8.— I went to the intervale this morning to look for the Shrike's nest which, by an odd chance, proved to be in the very first tree I visited, a small elm standing alone by the side of the lane that leads to the chair factory from the main road, scarce one hundred yards from the railroad station and not over fifty yards from the mill. The place where I saw the Shrikes on the 5th is some two hundred yards distant, but the brush-heap to which the female took the Swallow on that occasion is within thirty yards of the nest. Neither bird was about it when I discovered it this morning so I kept on to the other locality beyond. Scarcely had I reached it when the male Shrike appeared, skimming low over the wide field on the western side of the road, bearing some rather large, dangling object in his bill. He took it into a small, stunted elm by the roadside and affixed it to a short branch, spending less than a minute in the operation. After he had flown away I went to the tree and found a Pickerel Frog sitting crosswise on the branch, his hind legs well doubled at the knees, his head resting on his folded front paws, his eyes wide open. So very lifelike was his attitude and expression that I could not believe him dead until I touched him. He was so perfectly balanced that I thought at first that the Shrike had merely placed him carefully on the branch, but on closer examination I found that he was firmly impaled on a short pointed twig which had penetrated half an inch or more into the fleshy part of the thigh. He was a fair-sized specimen but very thin and slender.

I searched all the scattered trees and fence posts in the neighborhood in the hope of finding more victims but without success. The Bluebird had been removed from the willow since my last visit on the afternoon of the 5th.

Not long after the appearance of the male Shrike this morning I saw the female sitting on a fence rail well out in the open fields. For nearly an hour she

remained within twenty yards of the same spot although she frequently took short flights usually to the ground and back again to the same or a neighboring perch on the fence rails or posts. Although I watched her closely I did not once see her catch anything. Her manner of flying down to the ground and back reminded me strongly of that of a Bluebird. Sometimes she would remain on the ground for a minute or more hopping or fluttering from clod to clod on some recently ploughed land, evidently looking for insects but ordinarily she flew back to her perch almost immediately after alighting on the ground. While perched she remained for the most part as immovable as a Hawk and in a similarly erect, tense attitude.

Her mate was also in sight most of the time. His favorite perches were on the telegraph poles and their connecting wires along the roadside. While sitting on these his attitudes were as light and graceful as those of the Northern Shrike and he balanced himself in the same way, shifting his position frequently and often raising and lowering his long tail as well as occasionally half spreading it. It was a beautiful sight to see him start from his elevated perch and after a few rapid vibrations of his short, white-spotted wings, glide on a long, gentle incline half across a broad field before coming to the ground. Sometimes he would move very swiftly, but as a rule his motion after he had gone a few rods became slower and slower until he seemed to move no faster than a tuft of thistledown drifting before a light wind and with equal lightness and grace. I can think of no other bird which ever flies in just this way. After the few wing beats he held his wings widespread and quite motionless, his bill pointing downwards, his tail closed. He rarely approached his mate nearer than fifty yards. But once he went directly towards her and alighted within ten feet of her when she greeted him with a low, harsh, vibrating cry and a long-continued fluttering of her wings like that of a young bird. On another occasion I saw him fly directly off from a telegraph pole for a distance of about one hundred yards and then mount straight upwards to a height of forty or fifty feet apparently in pursuit of some flying insect which I thought he caught and instantly swallowed. During the upward flight he beat his wings vigorously but they were held nearly or quite immovable during the long, smooth glide by means of which he reached a fence post well out in the field. Soon after this he flew down to the ground and picked up what looked like a large beetle. Holding this in the tip of his bill he came nearly straight towards me and, to my great surprise, alighted by the side of a young Shrike which all the while must have been sitting within ten yards of me on a fence rail by the roadside. The young bird received the insect in its wide opened bill and instantly swallowed it, at the same time quivering its wings. The place where it sat was not over twenty yards from the elm where I had previously seen the frog impaled. Why had not the frog been given directly to the young Shrike? why had not the parent fed it at all previous to this during the hour I had been watching them (I should certainly have seen them feed it had they done so)? and where were the remainder of the brood? were questions that I asked myself in vain. I searched the whole neighborhood carefully but without discovering any more

of the young. The one I had seen fed was conspicuous enough (after my attention had been called to him) and one of the prettiest and oddest little birds I have ever seen. He could fly only a few yards at a time but he hopped along the fence rail ahead of me almost as fast as I could walk, using his wings only when I was on the point of touching him. His wings and tail were nearly black but the secondaries and greater wing coverts were broadly tipped with rusty brown. His under parts were exquisitely vermiculated with wavy grayish lines on a lighter gray ground. His eyes were very large and expressive, his bill short and blunt. Most comical of all was his little stub tail scarce two inches long. He carried it nearly erect and kept bobbing it up and down and flirting it from side to side in the most amusing way. All his motions were exceedingly quick and animated when I was pursuing him but after I had left him he sat erect and still with his plumage fluffed out like a little Owl.

On my way back I climbed to the nest and examined it closely. It was placed directly against the main stem of the elm about ten feet above the ground and was of the usual bulky character. From below it looked not unlike the nest of a Thrasher for it contained many large twigs in the lower portions but the walls were thickly and warmly felted with a variety of soft materials. There were fewer feathers than usual in the lining but such as there were looked fresh and clean as did the entire surface of the inner cup at the bottom of which lay a handsomely marked egg. Although I took this out and looked at it critically I was unable to decide whether it was addled or freshly laid. I am inclined to think, however, that it may be the first egg of a second clutch, for on June 5 I saw the female Shrike pull a tuft of sheep's wool from a barrel and take it off in the direction of the nest and while I was descending the tree this morning she came flying swiftly towards it and hovered within a few feet of my head uttering her harsh, grating cry. This I thought could be best compared to the long-drawn plaint of a Canada Nuthatch save for the fact that the notes were deeper, harsher, louder and given in much more rapid succession. When I heard it in the open field earlier in the morning it also reminded me a little of the mew of a Catbird.

While I was watching the Shrikes I heard two Bobolinks and a Savanna Sparrow singing in the grass not far from their posts of observation and on several occasions Bank Swallows skimmed close past one or the other of them. They seemed to take no notice whatever of these birds but to be wholly intent on watching the ground for insects.

1903, June 10.— Visited the Shrike family this morning in company with Walter Deane. Found the female on the nest apparently sitting but did not disturb her. The male was ranging about over his own territory and that which his mate has previously covered, hunting insects of which we saw him catch a number all of which he took to his solitary offspring. The latter although apparently no larger or better feathered than when I saw him last two days ago could fly strongly this morning. He followed his father from place to place taking flights of one hundred yards or more at a time and alighting well up in leafy trees as well as on fence posts. The old male *sang* a little while perched

on a tall weed stalk in a field. This is the first time I have heard his song. It was much like that of the Florida bird and consisted of a single note uttered eight or ten times in rather quick succession. I rendered this note on the spot as *p'lee*. It was soft, rather plaintive and decidedly musical. Walter thought it resembled the peep of Pickering's Hyla but it was much less shrill and piercing and to my ear more like the bell note of the Blue Jay although not very near that either.

Visited the Shrike's nest about half past eleven this forenoon. Both birds absent when we reached the tree but as Gilbert was climbing it they suddenly appeared and fluttered close about his head like a pair of big butterflies, uttering a rapid succession of scolding cries very like those of a Solitary or Yellow-throated Vireo (*eh-eh-eh-eh*, etc.), but louder and sharper. We took the nest which contained a set of four beautifully marked eggs. The birds came within four or five feet of Gilbert and when poising kept their tails widespread.

VIREONIDAE

Vireo olivaceus (Linné)

RED-EYED VIREO

Common to abundant summer resident
May 17, 1896–Oct. 10, 1889

This Vireo arrives late at Lake Umbagog, often not until the last days of the month. The males sing regularly until late August, and on September 26, 1899, one sang feebly and brokenly. The breeding season is sometimes very protracted; on Sept. 10, 1894 an adult was still feeding a juvenal. The species lingers with some frequency until September 20; the very late date given above in 1889 was the only one seen after September 13.

1896, JUNE 12.— One of the most abundant birds of this region and of universal distribution but most numerous perhaps in second-growth birches and poplar woods on burnt lands or about openings.

1908, JULY 29.— The Red-eye is literally the only bird which sings here now steadily at all hours. I heard him today through the entire forenoon and afternoon in the trees near the house and along the village street although the heat was intense. Even the Goldfinch is not so persistent a singer at this season. The Robin sang quite as freely as the Red-eye up to three or four days ago but now I hear him and the Hermit Thrush only in the early morning and late

evening. The Veery sang last on the 19th, the Song Sparrow on the 28th. The Chippy, the Vesper Sparrow and the Black-billed Cuckoo still sing occasionally (but no longer steadily) even during the hotter hours.

1908, Aug. 12.— The only bird which has continued to sing daily from the date of my arrival here to the present time is the Red-eye. All the others including even the Goldfinch have ceased to be heard regularly or frequently. But the Red-eye continues to hold forth, not only in the early morning but at all hours of the day. His song is now broken and spiritless, however, the notes being often delivered at intervals of several seconds and in feeble listless tones, while there are periods of an hour or more in duration when he will remain wholly silent.

Vireo philadelphicus (Cassin)

Philadelphia Vireo

Regular migrant in spring and fall; breeding irregularly
May 13, 1896–Sept. 20, 1895

It will perhaps be remembered that the discovery of the Philadelphia Vireo at Lake Umbagog in some numbers in the 70's of the last century made ornithological history at the time. The first announcement was by Ruthven Deane in the Bulletin of the Nuttall Ornith. Club, 1876, p. 74. This was followed by Mr. Brewster's classic paper in the same periodical for 1880, the leading article in the January number, and a supplementary article by him in the Auk for October, 1903, gave further information on the nest and eggs. These gave liberal extracts from his journals and there is little point in repeating them here. The chronology of this little known bird will, however, prove of interest. No effort is made to cite all the fall records.

1872.— three birds June 3–5.

1874.— five, August 29–September 11.

1876.— three, May 29–31; a male seen and heard on June 21, and breeding suspected.

1879.— mated pair shot on May 27; noted regularly through June, and several pairs breeding in the region.

1880.— recorded May 31–June 17, two pairs probably breeding.

1881.— May 19 and 20 only, a half dozen on the latter date.

1894.— two between September 3 and 10.

1895.— one, September 20.

1896.— May 13–24, 7 birds; none breeding; one September 6.

1896, JUNE 10.— I started out alone at 7:30 A.M. (at Lakeside). I wished to see if I could find a Philadelphia Vireo, for I have not seen one at the head of the Lake since May 24th or, in other words, since before the migration came to an end! Nor was I more successful here this morning, for although I hunted up every Vireo that I could hear singing in the poplar and birch second growth along the roadside and about the edges of the Brown clearing as far as the State line I found nothing but Red-eyes. Evidently the Philadelphia is not a common bird here now if, indeed, it is present at all.

1897.— none detected in May and June.

1900.— one on September 19.

1903.— breeding, nest and eggs found on June 14.

1894, SEPT. 3.— Among many small birds in a mixed flock in the birch grove on the Point I recognized a *Philadelphia Vireo*. The last was very tame and I watched him some time at close range. He appeared to be feeding chiefly on caterpillars,— smooth, greenish or brown ones. I saw him take and swallow one which was fully two inches long. It gave him considerable trouble and he was obliged to shake it and beat it violently with his bill before he could get it down.

1894, SEPT. 9.— It was a little foggy at daylight this morning, a fact which may account for the finding, by Will Sargent, in the middle of the Lake, today, of a Philadelphia Vireo floating dead, back up. It doubtless became bewildered while attempting to cross the Lake and flew about in circles until exhausted.

1880, JUNE 17.— Two males singing today, one in Ellinwood's clearing, the other near the Sargent cove. The former I saw; he was singing in a small paper birch, and I stood for sometime within ten feet of him. I again heard the whining note and carefully criticized the song which I can now tell with absolute certainty from that of *Vireo olivaceus:* it is slower, with less volume, and has a peculiar double syllabled note which is always repeated twice.

1903, JUNE 14.— Heard two males singing this morning in the mixed second growth woods just to the eastward of Lakeside. One of them was in an aspen by the roadside *singing on the nest* which was about 30 ft. above the ground and some 10 ft. below the branches. After singing almost continuously on the nest for 15 or 20 minutes the bird flew across the road and into the top of a much taller poplar where it continued singing, giving one a clear view of its yellow breast as it sat perched on a dead twig in the full sunlight. Shortly after this it returned to the nest and continued singing there for an hour.

1903, JUNE 15.— Gilbert and Alva Coolidge visited the Vireo's nest at 5:30 a.m. The ♂ was sitting and in full song. He left the nest when Gilbert reached the base of the branch to which it was attached and shook it slightly, flying directly off into the woods out of sight. A few minutes later he returned bringing his mate. Both birds flitted about in the tree near Gilbert but the ♂ acted shy and suspicious and soon departed again. The ♀ remained and was shot by Alva. Gilbert cut off the branch and secured the nest and its three fresh eggs. These constituted the full set for when I skinned and dissected the ♀, I found that she had laid her last egg. Both birds uttered a low Vireo scold Gilbert says.

Heard a Philadelphia vireo singing this afternoon on the steep mountain side above the road near the highest point in Dixville Notch among stunted paper birches.

Vireo gilvus gilvus (Vieillot)

EASTERN WARBLING VIREO

Local summer resident in the villages; once on migration at the Lake
May 11, 1896–Sept. 17, 1904 (at Bethel)

Several pairs of Warbling Vireo nested at Bethel, and at least one at Norway. Mr. Brewster's notes specifically mention that he failed to find it at Colebrook, N. H.

1896, AUG. 14.— I shot a Warbling Vireo this morning in the Balm O'Gilead Poplar at the N.W. corner of the piazza, firing from the window of my room. There were certainly three and I think four of these Vireos in the tree. I first saw them when I was dressing and heard them call and one of the young warble in low tones. This is the first time that I have ever found *V. gilvus* at Umbagog although it breeds regularly at Bethel.

Vireo solitarius solitarius (Wilson)

BLUE-HEADED VIREO

Uncommon summer resident
May 10, 1897–Oct. 10, 1888

In the early 70's only one or two pairs were found nesting about Lake Umbagog. These had increased to at least six pairs by 1879, but there was no further change in subsequent years, Mr. Brewster noting six pairs in 1896. Neither in spring nor fall was there much sign of migrants passing through. Three was the maximum number of individuals ever noted in one day, once in late May and once in early September, or only two days in thirty-eight years. It should be noted, however, that the bird is listed almost daily in those years when September and early October were spent on the Lake. Its frequent and regular singing in fall is a habit of the species which Mr. Brewster noted frequently.

Vireo flavifrons (Vieillot)

YELLOW-THROATED VIREO

Casual at Skunk Hollow, Bethel, June 13, 1906

COMPSOTHLYPIDAE

Mniotilta varia (Linné)

BLACK AND WHITE WARBLER

Rare on migration around the Lake; rare summer resident in later years
May 17, 1881–Sept. 26, 1896

The Black and White Warbler was little known in earlier years at Lake Umbagog, and was not safely presumed to be nesting until 1903, and then chiefly at Bethel and Norway, where four singing males were found in June. Around the Lake itself there are a somewhat meager scattering of spring and fall records as follows:

1873.— one on August 26.
1881.— pair shot May 17.
1887.— one on September 6.
1894.— September 3 and 15.
1895.— September 5.
1896.— one May 21; another June 11, not seen again; four birds, August 28-September 26.
1897.— September 11.
1898.— September 1, 2 and 3.
1907.— July 29.

There are as many fall records again from Bethel.

Vermivora ruficapilla ruficapilla (Wilson)

NASHVILLE WARBLER

Common transient; rather rare summer resident
May 10, 1897–Sept. 27, 1904 and Oct. 9, 1885

The Nashville Warbler is a very common summer resident just south of Lake Umbagog, around Bethel, Norway and Upton, but was

always rare in the dense forests around the Lake, strangely so Mr. Brewster thought, as he found several pairs at the highest point of Dixville Notch, and many just east of it. On migration however, it was always noted daily the latter half of May, and was recorded much more frequently in fall than many other species up to September 20th.

1896, JUNE.— In view of the fact that this Warbler seemed to be common in the dense forest in and near Dixville Notch it is strange that we failed to find it anywhere about the head of Umbagog. Near Lakeside one or more pairs are settled for the season in every spruce grown pasture or large opening.

Vermivora celata celata (Say)

ORANGE-CROWNED WARBLER

Very rare transient in fall; only three records

1890, SEPT. 26.— At the further end of a cover of poplars and birches growing thinly on a knoll (near Ferrin's) I heard a Warbler in some alders uttering, at intervals, a chirp which sounded at once strange and familiar. By "screeping" a few times I called it into sufficiently plain view to see that it was none of the species of common occurrence here and at once shot it, when to my great delight I found that it was an Orange-crown, a bird which as far as I know has never before been taken in this region. It proved a female in fresh autumn plumage and although hard shot made a very good skin.

1895, AUG. 30.— On my return as I reached the road I saw a small bird fly into a thicket of *Viburnum Opulus*. I made a low "screeping" when the bird at once showed itself, at first peeping out shyly from the foliage but finally hopping out on a nearly leafless branch where it permitted me to look at it for a minute or more through my glass from a distance of only six or eight paces. It was an Orange-crowned Warbler in full autumn plumage, apparently a female, for it had but little yellow on the under parts and that confined to the breast. There was another small Warbler in the same bush which I am practically certain was also *H. celata*, but which I cannot claim to have identified with absolute certainty. Both birds behaved precisely alike hopping and flitting from twig to twig in the most active manner. Both flirted their wings nervously like Kinglets and wagged their tails slightly but unmistakably much in the manner of the Nashville Warbler. The one which I did not fully identify would not show itself fairly, but I saw enough of it to feel really sure that it was the same as the other. Both birds were wholly silent.

1898, SEPT. 2.— About fifty Warblers spent the forenoon on the Point keeping lower down than usual and feeding busily among the birches and alders along the shore. I looked them over very carefully and found among them a young (?) male *Helminthophila celata* and a female *Dendroica tigrina*, both in full autumn plumage.

Vermivora peregrina (Wilson)

TENNESSEE WARBLER

Formerly a common summer resident and abundant transient, later completely deserting the region.

May 20, 1880–September 10, 1888

1871, MAY 20–JUNE 10.— Very common and generally distributed, being found everywhere throughout the woods but especially in arbor-vitae swamps and thickets of young firs. They feed high up in the tree-tops and were very restless, rarely remaining long in one place, and frequently taking long flights. They sang freely at all times of the day, frequently on wing, especially just before alighting after a long flight. The song resembles that of the Nashville Warbler but is shriller and more prolonged and rapid. The female has a sharp chirp, precisely like that of the Nashville. They were usually found nearer the ground than were the males. One shot June 7 was incubating, and several taken previously had laid all but one or two of their eggs.

1872, JUNE 2–9.— abundant.

1873, AUG. 12–25.— Abundant along the banks of Cambridge River above the dam, associating with other Warblers in large companies, and especially frequenting the alders and Viburnums overhanging the water.

1874, AUG. 6.— At least two-thirds of a flock of mixed Warblers met with today in second growth birch and poplar on the Tyler road were this species. They uttered a chirp very like that of the Nashville Warbler, and were shy and restless. I shot four.

1876.— General arrival in numbers June 5. Noted from June 4–14.

1879.— One on May 22. June 1 "not a single bird seen or heard as yet."

1880.— In numbers on May 20.

1881.— One bird the entire season, on May 28.

1888.— Two on September 10.

1896, MAY 11–JUNE 14.— Not met with either at Lake Umbagog or along the roads between Lakeside and Bethel and Lakeside and Colebrook. I fancy that its desertion of the Umbagog valley is due to the fact that practically all the larches were destroyed by some insect and very few young ones are springing up anywhere in this region. The favorite haunts of the Tennessee Warbler are larch swamps and bogs.

1897.— One on June 5.

Compsothlypis americana pusilla (Wilson)

NORTHERN PARULA WARBLER

Common summer resident, abundant transient
May 11, 1897–Oct. 9, 1888

1896, MAY 13–JUNE 12.— Very common and generally distributed throughout the Lake valley but most so near the shores of the Lake and those of its connecting rivers. Most numerous however in the migration, at least ½ passing on.

1879, JUNE 13.— Set of four eggs incubated about four days. Nest in usnea moss hanging from horizontal dead branch, on small spruce, near the Lake shore. Height six feet. This nest was found June 3, when it was empty but apparently completed; today the female was looking out at our approach; she flew from it when I was about twenty feet away and at once began to chirp when the male appeared. After I had taken the eggs, nest, and branch, they hunted for their lost home a long time, carefully examining every little bunch of moss on the tree. Two of their eggs had the contents thickened or congealed so that they were blown with great difficulty; the shells of all were very thick and strong, resisting the point of the drill nearly as much as do Woodpeckers eggs.

1898, SEPT. 6. — Parula Warblers and Red-eyes Vireos were singing most of the forenoon and with almost as much energy and persistence as if it had been June instead of September.

Dendroica tigrina (Gmelin)

CAPE MAY WARBLER

A summer resident, at first abundant, then uncommon, and deserting the region after 1897.

May 13, 1896–September 2, 1898

1871, MAY 30–JUNE 10.— Very common everywhere, especially among thickly-growing, tall firs. The song closely resembles that of the Bay-breasted Warbler, and the habits of the two are similar, but the Cape May is, on the whole, a more active bird. It keeps invariably near the tops of the highest trees whence it occasionally darts out after passing insects. It has a habit of singing on the extreme pinnacle of some enormous fir or spruce, where it will often remain perfectly motionless for ten or fifteen minutes at a time; on such occasions the bird is extremely hard to find, and if shot is almost certain to lodge on some of the numerous spreading branches beneath. The females were usually found equally high in the trees. We took several that were about to lay and one killed June 9 had evidently deposited all but her last eggs.

1872, JUNE 2–14.— Abundant. Generally distributed and extending southward to Grafton Notch. In rainy or dark weather they came in numbers from the woods to feed among the thickets of low firs and spruces in the pastures. Here they spent much of their time hanging head downward at the extremity of the branches, often continuing in this position for nearly a minute at a time. They seemed to be picking minute insects from the under surface of the fir needles. They also resorted to a thicket of blossoming plum trees directly under our window, where we were always sure of finding several of them. There were numerous Hummingbirds here also, and these, the Cape Mays were continually chasing. On June 8 we took a fully formed egg (lacking the shell however) from a female of this species and several killed a day or two later were evidently incubating. The season is a late one and these Warblers seem to be among the earliest species breeding here.

1879.— not a single specimen seen or heard.

1880.— a male on May 20.

1881.— single males on May 17 and 18.

1896, MAY 13–JUNE 10.— Five pairs located.

1897, MAY 20–JUNE 11.— Three pairs located.

1896, JUNE 10.— I started out alone at 7:30 A.M. (at Lakeside) to look up some of the Cape May Warblers which we left here last month apparently settled for the season, one in the little spruce opening at the head of the Sweat Cove, another in the spruce pasture just below Strickland's in Upton, a third on the edge of the forest in small timber spruces at the S. E. corner of the Brown opening, the fourth in dense pasture spruce between the Brown Cove and the road and within a few rods of the latter. I visited the singing stations of birds 3 and 4, and was delighted to find the latter at his usual post although he was singing only feebly and intermittently. Indeed I waited in his little corner nearly half-an-hour before he gave any sign of his presence. Twice afterwards I saw another Warbler which I took to be his mate, for he joined her and the two flew off together, but the spruces were so dense that I was unable to follow the birds or to get a fair sight at the supposed female.

Probably I did not wait long enough for bird 3 for I found his favorite perch apparently silent and deserted with not even a Blackburnian within hearing. This, however, was before the sun came fairly out and birds were not singing well.

From the behavior of these Cape Mays and from the fact that the one seen this morning sang so very little I have received the impression that they must be much earlier breeders than most of the other Warblers. It is singular that I have been unable to find any of them at the upper end of the Lake for in the old days we used to see them well back in the forest although even then their favorite haunts were certainly spruce-grown pastures similar to those about Lakeside.

1896, JUNE 11.— The Cape May Warbler was heard singing about 50 yards from the shore in rather open woods of large spruces, balsams, hemlock, and yellow birches. The song of this Warbler is harder — or at least sharper and

more penetrating — than that of either the Bay-breast or Blackburnian. In these respects it resembles the song of *Protonotaria* but the tone or quality is more wiry and, indeed, very close to that of *Mniotilta*. The bird is perhaps the least regular and persistent singer of the genus. One can never be sure of finding him in song, even in the early morning, and his singing periods are ordinarily brief with long intervals of dead silence. The number of notes varies from three to seven. One of the birds established in the Staples farm woods just north of Great Island (I heard both of these birds singing on the morning of June 12th) usually gives only three notes but sometimes raises the number to five. The other bird ordinarily gives five and sometimes six. The bird near the Brown farm east of Lakeside habitually has seven.

Dendroica aestiva aestiva (Gmelin)

Eastern Yellow Warbler

Formerly very rare, later nesting at Bethel and Norway
May 29, 1871–Sept. 1, 1898

The extracts below show how meager is the history of the Yellow Warbler in the Umbagog Region.

1871.— At Bethel May 29 and 30.

1872.— None between Bethel and Upton. A pair near the Lake seen on June 4 only.

1896.— Several males singing at Colebrook, N. H. on June 14.

1898, Sept. 1.— In a large mixed flock of Warblers which were feeding in the tops of the birches on Pine Point this morning I found a Yellow Warbler — a rare bird here. It was pure, rich yellow beneath without obvious traces of the chestnut streaking. I had a clear view of it at short range and watched it for ten minutes or more.

1903.— June 10, nest found at Bethel. June 9 at least three males at Norway.

1907, July 26.— I heard this bird sing eight or ten times about 4 P.M. as I was sitting by an open window in my room at Lakeside. It was at a considerable distance — apparently in shrubbery by the lake shore in the direction of Wm. Sweats' — yet I got all the notes distinctly if faintly — including the terminal ones which distinguish the song from that of *D. pensylvanica*. Hence I am *sure* that I made no mistake. Mr. T. Bernard Walton, a young bird student from Pennsylvania who is staying here, tells me that he saw a ♂ Yellow Warbler and heard it sing about ten days ago. His bird was in a bush by the roadside near Sweats' house and very probably the same individual that I noted today.

Dendroica caerulescens caerulescens (Gmelin)

BLACK-THROATED BLUE WARBLER

Common summer resident

May 11, 1897–Oct. 10, 1888, and Oct. 21, 1902 (at Bethel)

The Black-throated Blue Warbler is one of the commoner breeding Warblers at Lake Umbagog. The local population was chiefly concentrated wherever there were extensive patches of yew (*Taxus canadensis*). Popular writers have given this species the reputation of concealing its nest so well that it is supposed to be exceedingly difficult to find. Long before this reputation was acquired, Mr. Brewster and his competent friends and assistants had little difficulty in locating more nests than the world's largest collections could conceivably require. Thus eleven were found between June 3–16, 1896, and four in three days in 1897; this, of course, was long after the nests and sets of eggs collected 15–20 years earlier. Extracts from the journals will show how simple a matter finding some of these nests was.

During the spring and fall migration this Warbler does not gather in large flocks, so that no great number of individuals was recorded in any one day, but one to several individuals were noted daily. This was specially evident in fall when most Warblers are less commonly noted than in the more concentrated spring migration. There was a most exceptional fall flight in 1898, however. The Black-throated Blue Warbler was recorded daily from August 23 to September 21, and on September 4 and 5, a dozen individuals were seen each day.

1873, AUG. 11.— Came upon a brood of four very young birds in first plumage, attended by both parents. The family moved rapidly through the woods, keeping rather low down, the young twittering loudly and incessantly. One note of the adult is a soft *cluch* precisely like that of the Junco.

1879, JUNE 18.— Nest in Yew, directly under a large prostrate log and about fifteen inches above the ground. Male singing about thirty yards off. The female started from the nest when I was about fifteen feet away and quickly returned, chirping incessantly, when the male joined her and flitted about near by quivering and trailing his wings, and spreading his tail. The locality was a hillside covered with spruce and beech with an undergrowth of Yew.

1879, JUNE 20.— They are much more abundant along the Andover road than I have ever found them elsewhere in this region. I think they prefer higher land than that about the Lake. I heard three males singing at one time today, and many single ones, all in woods where *Viburnum lantanoides* formed the only undergrowth, there being no ground hemlock or young firs.

1880, JUNE 8.— A last year's nest in Yew. Like the two found last week, and unlike the one taken last year, it was placed in the fork of an upright spray and could be seen several rods off. These nests, with their thick walls of inner felted bark and lining of black rootlets, are at once distinguishable from those of any other Warbler breeding here.

1880, JUNE 10.— Nest in upright fork of Yew; height fifteen inches; rather conspicuously placed and visible ten yards off; female absent; male singing twenty yards away; edge of dense bed of Yew, west side of Great Island. The nest contained two eggs which were perfectly fresh. I took them, substituting two eggs of the Chipping Sparrow. Returning June 13, I found that the female had laid only one more egg. She was sitting and permitted me to almost touch her.

1896, JUNE 3.— This morning Watrous took me to the nest of *D. caerulescens* which he found building May 24th. It had four eggs today and the female was sitting. She was very tame allowing me to set up my camera within four feet of the nest and when started off returning within a few minutes and resuming her task. The nest was on Spelman's Point on a hillside in a hollow surrounded by fallen spruce tops, densely shaded by big hemlocks and filled with a rank growth of yew. I got several pictures of the nest and sitting bird.

1896, JUNE 11.— All three of the nests of *Dendroica caerulescens* which I examined today on Great Island were in beds of yew a few rods from the Lake shore. One was in short, rather scanty yew about 8 inches above the ground, another in dense, taller yew about a foot above the ground, the third in excessively rank yew waist high but the nest not over 15 inches above the ground. Two nests were near large, prostrate logs. All three birds were sitting. Two flew from the nest at a distance of eight or ten yards in advance of us and one of them would not return to her eggs while my camera was in position about 6 ft. away, although I left it there for over an hour. The third bird sat more closely than any female of this species that I have hitherto seen. Watrous struck the yew within six inches of her with his stick without starting her. Later I set up my camera first about six feet away, then four feet, and finally within two and one half feet, using the focusing cloth each time and taking six pictures in all. When the tripod leg shook the branch which supported the nest the bird would raise her head and crane her neck out over the edge of the nest to get a better view of me. At all other times she sat very still merely winking at short regular intervals. My photographs show her position in the nest well. When I had finished my work I packed up my camera and left the bird still sitting on her eggs.

1898, SEPT. 1.— *Dendroica caerulescens* has two notes which closely resemble those of the Junco. One is a soft *tsup*, the other a tittering flight call (ti-ti-ti-ti-ti-) exceedingly like that made by the Junco when first taking flight but less loud. These Warblers are exceptionally numerous here this autumn. I saw at least a dozen this morning. They are often seen in the tops of tall trees at this season.

Dendroica coronata (Linné)

Myrtle Warbler

Very common summer resident; abundant transient in fall
May 10 (or earlier) –Oct. 27, 1884

In 1896 Mr. Brewster summed up the status of this Warbler as follows:

Very common all around the Lake, every point having its pair and others scattered along the straighter portions of the shores. A few back in the forest also. On the whole quite as numerous as of yore.

In fall Myrtle Warblers flooded the country during September, remaining regularly until October 10 in all but the coldest seasons. The spring migration was much more rapid and less conspicuous, the peak between May 20–25, with maximum daily numbers less than half those in fall. With the experience gained in earlier years, finding nests in some quantity was obviously a simple matter.

1871, June 9.— Three nests found yesterday and today were built in young firs about breast high; they were all large, deeply hollowed and lined chiefly with feathers; they contained four eggs each all far advanced in incubation.

1874, July 31.— The young chirp in more guttural tones than the other young Warblers, and continue calling for a longer time without cessation.

1876, June 11.— A second nest among the firs behind the mill. It was built about ten feet above the ground in a small isolated spruce in the middle of an opening. The female was sitting and when started off, chirped sharply, bringing up the male who had been singing some thirty yards away. The nest contained four perfectly fresh eggs.

I also took the nest found yesterday; no more eggs had been laid, and the nest was evidently deserted. Its position was similar to that of the last but it was lower, about seven feet above the ground and five below the top of the tree.

1879, June 5.— Nest in *Pinus banksiana* on the end of a point. Eggs incubated about ten days. Height twelve feet. This nest was on a horizontal branch about five feet from the trunk. It was so conspicuous that I saw it while paddling by in my boat. The female sat so closely that I shook the branch several times before she would start. When she did fly, however, she immediately disappeared and was not again seen.

1897, June 14.— Watrous had previously found two Warblers' nests in a grove of large hemlocks close to the shore near the "Gut." One proved to be an old nest but the other was a Yellow-rump's with four eggs rather far ad-

vanced in incubation. This nest was in a hemlock on a stout horizontal branch about 5 ft. from its extremity, 10 ft. from the main trunk, 35 ft. above the ground, and the same distance from the top of the tree.

The female Yellow-rump was sitting and for some time she absolutely refused to leave her eggs. Watrous first shook the branch and then with a long stick poked and shook smartly the twigs within an inch or two of her head. At length she hopped out of the nest and stood for a moment or more on its rim looking about her. Then she fluttered down towards the ground with quivering wings and wide spread tail, moving slowly and alighting several times on a branch or cluster of twigs where she would lie prostrate for a moment beating her wings feebly and simulating the movements of a wounded or otherwise disabled bird. In short she behaved precisely as one of the ground-nesting birds (*Seiurus* for example) will do under similar circumstances. Watrous secured this nest and set in the same manner as that by which he took the Bay-breast's earlier in the day. The nest was lined with feathers as usual but from beneath it looked so nearly like a Bay-breast's that we were all deceived. Indeed we could distinguish no differences whatever, the general effect being precisely the same.

1896, May 30.— The Yellow-rump's nest in the fork of the tall paper birch at Osgood's camp-ground had nearly doubled in size when I visited it this morning. I watched it about ten minutes during which the female came to it three times with building material. She remained in the nest an unusually long time, turning around and working with her bill.

1898, Sept. 2.— One of the Yellow-rumps, a female in worn breeding plumage, was feeding a brood of young which were still in first plumage.

Dendroica magnolia (Wilson)

Magnolia Warbler

Abundant summer resident in earlier years, still generally common twenty-five years later.

May 11, 1897–Sept. 29, 1888

The abundance of the Magnolia Warbler in earlier years and the ease with which experience could find the nest is best exemplified by statistics from the diaries. Twelve nests were found in 1876 in 10 days, and 15 nests in 13 days in 1879! On migration this Warbler was about half as numerous as the Myrtle in spring, but was decidedly one of the more uncommon warblers in fall. A half dozen or less was the usual average per season, with the exception of the remarkable year 1898, when 23 were observed, though its relative uncommonness was maintained.

1876, JUNE 11.— Seven recently completed nests; six empty, one containing a single egg, all built in fir shrubs; none over two feet above the ground.

1879, JUNE 10.— Three sets of eggs, four, two, and five respectively; the set of five incubated about ten days, the others fresh; the nests all in small evergreens by the roadside, two in firs, one in a spruce; height from three to five feet. The parent of the set of five sat so closely that I almost touched her with my hand; she slid quietly off the nest and began chirping sharply, hopping about within a few feet of me, trailing her wings and jetting her widely spread tail nervously. She was in exceptionally high plumage and probably a very old bird which may account for the exceptional number of eggs in this set.

1879, JUNE 17.— Nest on horizontal branch of tall spruce at its extremity, about eight feet above the ground, beautifully concealed under a flake-like layer of twigs, and almost pensile in character. This nest was found June 13 when it contained two eggs.

1876, JUNE 17.— Nest in the heart of the woods near the extremity of a horizontal spruce branch at least twenty-five feet above the ground; female sitting on four fresh eggs.

1897, MAY 29.— Several birds singing *witty-witty-wrèechy*. It requires no great effort of the imagination to render this *pretty-pretty-Rachel*.

1897, JUNE 1.— Two birds at Leonard's Pond sang *prètty-prètty-Rachel* with great distinctness and emphasis; another invariably repeated the *pretty* three times — i.e. *prètty-prètty-prètty-Ràchel*. The first form is evidently very commonly used throughout the Umbagog region. Indeed more than half the birds that I hear give it. Next in popularity is the very different form *te-tèe-tee-tee-sèi* or *te-tèe-te-sèi*. I have never known a bird to change from this to the *prètty-prètty-Ràchel* song.

Dendroica pensylvanica (Linné)

CHESTNUT-SIDED WARBLER

Rare and irregular summer resident, regularly recorded on migration.
May 10, 1897–Sept. 6, 1895, and Sept. 26, 1896

In earlier decades the boreal forests around Lake Umbagog were just a little too far "north" to suit the Chestnut-sided Warbler. Occasional pairs would be found in one section or another, apparently representing an overflow from the lower country to the south and west, where it was always present, and had become quite common 20 years after the original exploration of the region began. In spring and fall, it was recorded nearly every season, but always in very small numbers. The August and early September birds were frequently seen in years when no local breeding pairs were present.

1879, June 11.— Nest with four eggs incubated about four days. Nest in hard hack bush, height four feet. (Hillside south of B Meadows; at least a dozen males singing in the vicinity.)

1896, June 10.— After the migration had passed I did not find this species at all near the head of the Lake. It still breeds commonly, however, about the edges of the openings near Lakeside as well as along the bank of the Cambridge River throughout the big swampy woods between the Mill and the Forks.

1907, Aug. 14.— male adult in full song in apple tree near hotel at Lakeside.

Dendroica castanea (Wilson)

Bay-breasted Warbler

Erratic summer resident, sometimes abundant, again entirely absent; on migration common in spring, always very scarce in fall.

May 15, 1896–Sept. 20, 1895

The remarkable variations in the breeding population of the Bay-breasted Warbler is best brought out by liberal quotations from Mr. Brewster's journals. On migration it was always recorded in spring, sometimes in numbers that would appear quite fabulous near Boston. Thus in 1896, 41 birds were seen in late May, with 15 singing males on the 23rd. In fall it was a rare bird, often unrecorded, and in no season were more than three encountered.

1871, May 30–June 10.— More abundant than any other bird in this locality. Found everywhere in the woods (except in the denser arbor-vitae swamps) but most numerous in mixed growths. They kept chiefly in the very tops of the highest spruces, and as they frequently sang fifteen minutes or more in one place without apparently moving, they were most difficult to find and shoot. In motions they were slow and sluggish like the Black-Poll Warbler, but unlike that species were never fat. We seldom saw them in deciduous trees. Their song was a shrill, feeble, cheeping note, repeated three or four times, and varied considerably in different individuals. Sometimes it was a simple *zee-zee-zee* like that of the Golden-crest Kinglet; at others more musical and warbling, closely resembling those of the Redstart. Two nests were found, both placed near the extremity of horizontal spruce branches about twenty feet above the ground. They were large and bulky, and scarcely distinguishable from those of the Purple Finch. One contained two fresh eggs, another three fresh eggs June 9.

1872, June 3–14.— Abundant and migrating up to June 5. After this date their numbers were reduced one-half, although numbers remained to breed. The difference between the song of this species and that of *D. tigrina* is subtle but distinctly marked. The notes are fewer, rarely exceeding three repetitions of the word *zee*.

1879, June 1.— This species, like the Cape May and Tennessee Warblers, seems to have entirely deserted this region. At least those seen near the Lake House, May 26, have disappeared. Yesterday I visited a spot where they abounded in 1876, but not one could be found, nor was it either seen or heard during my trip up Cambridge River, May 29.

1879, June 18.— A male singing on Great Island. The song is a simple *zee-zee-zee*, very quickly given. It closely resembles the ordinary note of *Regulus satrapa*, but has a more ringing quality. There are also I think, one or two pairs breeding west of the Peaslee Farm, but I know of none elsewhere and the bird is decidedly rare here this season.

The situation changed abruptly in later years. In 1896 and 1897, the Bay-breasted Warbler was a common summer resident, and many nests were found, after discovering how to do so.

1903, June 12.— Heard a male singing near Peaslee's Spring, Upton. This was the only Bay-breast which I could find about the Lake during my brief visit this season. I fear they are really growing less in numbers for their favorite red spruces are fast disappearing.

1896, June 4.— We then retraced our steps to the knoll by the big boulder where the Black-burnian and Bay-breasted Warblers are so numerous. Here we spent the remainder of the forenoon making an exhaustive (and exhausting) search for nests, pounding hundreds of trees with an axe in the hope of starting the sitting birds. This plan failed utterly (we afterwards learned by actual experiment that these Warblers will not leave their nests even when the trees in which they are placed are pounded vigorously) for we did not find a single nest of any kind. There were at least a dozen Bay-breasts and an even greater number of Black-burnians singing on this knoll within an area of eight or ten acres.

1896, June 7.— In the afternoon visited the Warbler's nest in the balsam on Mason's knoll — the nest that we left with 4 eggs yesterday. It had 5 eggs today and a female Bay-breast was sitting on them. Shaking and pounding the tree did not seem to disturb her but every 15 or 20 minutes she would leave the nest of her own accord and ramble about among the neighboring tree tops, feeding, returning to her eggs after an absence of 4 or 5 minutes. Once while on an excursion of this kind she was joined by the male who brought her an insect of some kind in his bill and gave it to her. She accepted it with apparent indifference but at once ate it. The male is the bird who sings in the hemlock 30 yards away.

After photographing this nest we secured it with the eggs. The pair of Bay-breasts flitted about some distance off while Watrous was despoiling them, but as soon as he came down from the tree the female began searching for her nest examining all the neighboring branches carefully and hovering in the air at the place where the branch with the nest had been.

1897, June 12.— Watrous and Gilbert spent most of the afternoon on the

southern extremity of Great Island where the former found a nest of the Bay-breasted Warbler with 5 fresh eggs and one of the Black and Yellow Warbler with one egg. He sent Gilbert after the house boat to let me know of this, and I sailed back in the canoe, landed, and examined both nests *in situ* making a perfectly certain identification of the female Bay-breast just after Watrous started her off her eggs. She sat wonderfully close refusing to move when Watrous shook and moved the branch gently or when he thrust out a stick and poked the twigs within a few inches of her head. Watrous got the nest by tying the branch firmly to other branches above and then crawling out on it.

1897, June 14.— We next crossed to the northern end of Great Island landing first on the western side of the cove to visit a Warbler's nest found on the 11th in a big hemlock fully 60 feet high. Watrous reached it with some difficulty when it proved to be an old nest apparently of *D. castanea!* We have had many such disappointments of late.

A similar-looking nest, found by Watrous on the 11th in a large red spruce 200 yards or more back from the water on the opposite side of the cove, was next visited. It turned out to be a Bay-breast's containing a fine set of 5 fresh eggs. The nest was fully 50 feet above the ground near the end of a stout, drooping branch about 15 feet from the main trunk. Watrous reached this nest by climbing a tall, slender maple which, by the aid of a rope, Jim and Gilbert drew over and held within arm's reach of the nest. The nest was almost perfectly concealed from view from every direction by the density of the surrounding spruce foliage. The female sat very closely, refusing to leave her eggs until Watrous parted the twigs directly over her head with his hand. She then shot down on a very steep incline and alighted in a small spruce where I had a perfectly satisfactory view of her at close range. During the descent from the nest she vibrated her wings in a peculiar manner and for nearly half a minute after reaching her perch she kept quivering them much as a young bird does when soliciting or receiving food.

Returning to the boats we pulled out of the cove and along the shore eastward. Watrous exclaimed (after we had landed and found an empty Swainson's Thrush's nest) "There is a Warbler's nest!" and looking up I saw it at once, almost over our heads. It was in a red spruce (a tree about 40 feet tall and 10 inches in diameter at the base of the trunk) on a stout, horizontal branch 11 feet from the main stem, 3 feet from the extremity of the branch, and 25 feet above the ground. On climbing the tree to a point well above the nest Watrous reported that he could see at least four eggs. A male Bay-breasted Warbler was singing not 20 yards off and twice he came into the tree and flitted about near the nest showing evident interest in it. It is possible that we disturbed and frightened off the female while we were taking the Thrush's nest but more probable that she was away feeding. At all events we saw nothing of her on this occasion and for this reason left the nest undisturbed although there can be no reasonable doubt that it is a Bay-breast's. (Watrous and Gilbert visited this nest later and took it with a set of 5 eggs. The female was sitting and Watrous had a good view of her.)

As we were following the path which leads around the boat cove Jim was lucky enough to find a nest of the Bay-breasted Warbler containing five fresh eggs. It was on a stout, drooping branch of a large red spruce about 5 ft. from its extremity, 13 ft. from the main trunk, and 20 ft. above the ground. The female sat very closely, refusing to move when the branch was shaken with some violence and only leaving her eggs when Watrous struck the twigs close over her head with a long stick. She then flew down into some young arbor-vitae where the male immediately joined her, and both birds began feeding neither showing any solicitude or appearing to notice the movements of Mr. Watrous who, with a stout rope, first tied the branch firmly to the trunk above and then walking out on it secured the nest and eggs. Previous to this I had of course identified the female to my entire satisfaction. I also took several photographs of the nest before it was disturbed. Like most nests of this Warbler it showed plainly enough from beneath looking very like a large nest of a Chipping Sparrow but from above and from every side it was well concealed by the spruce foliage that pressed close over and around it. Before the female was started her mate was singing steadily in some hemlocks about 20 yards from the nesting tree.

Dendroica striata (Forster)

BLACK-POLL WARBLER

Regular spring and fall transient, often abundant
May 21, 1897–June 11, 1876; Aug. 25, 1873–Oct. 2,.1890

The status of the Black-poll Warbler in spring in the Lake Umbagog Region is precisely the same as in eastern Massachusetts, namely, it is always common for at least a few days, and occurs at times in positive abundance, with the bulk of the flight passing through very rapidly. In fall, however, the lavish abundance of the species in Massachusetts, where it floods the country for nearly a month, is signally absent. In some years the Black-poll Warbler will be common or abundant for a few days, but in others only 3 or 4 individuals were recorded the entire season. On two occasions males were observed so late in June that a casual breeding pair was a possibility.

1876, JUNE 17.— Heard a male singing near the house this morning; it was probably a late straggler. A week ago they were common.

1903, JUNE 13.— A Black-poll Warbler was singing freely both yesterday and today among the white spruces near Bernier's shop. I wonder if he can be breeding there! The date seems late for a migrant.

Dendroica fusca (Müller)

Blackburnian Warbler

Common summer resident, abundant during spring migration
May 12, 1897–Sept. 19, 1895

The changing status of the Blackburnian Warbler as a summer resident is an interesting epitome of the results when original primeval conditions vanish. It is fully brought out in the extracts from the journals reproduced below. It is interesting to note the scarcity of this Warbler locally in fall. There are hardly any records for September, and 8 is the maximum number of individuals ever noted in one season. In other words the Blackburnian Warbler is just as scarce relatively in fall in northern New England, where it is a common summer resident, as it is noted for being further south on migration. Just what happens to this abundant species after the middle of July still remains something of a mystery.

1871, May 30–June 10.— Although common this species was not nearly so abundant as the Bay-breasted, Black and Yellow, and Cape May Warblers. A female shot June 9 had not begun incubating.

1872, June 2–5. — Very numerous and evidently migrating, small companies being found everywhere, often in thickets and brush piles by the roadside. After June 5 they became settled for the season.

1876, May 27.— Very abundant today and I frequently heard six or seven males singing at once. Their song is somewhat like that of the Parula and may be represented by the syllables *tseep*, *tseep*, *tse-tse-tse* with the last three notes on a higher key than the first two.

1876, May 29.— I noticed today that these warblers have retired to the tree-tops, and that each male kept to his own domain and defended it against all invaders.

1876, May 30.— The weather became suddenly cold again last night and these Warblers were again collected into flocks this morning, keeping near the ground in sheltered, sunny nooks.

1896, June 12.— Quite as numerous about the head of the Lake as it used to be in the '70's near the Lake House and elsewhere at the foot of the Lake where only a very few remained to breed this year, (the destruction of the spruce timber explains the discrimination here). In the Pine Point and Mason woods the most numerous and generally distributed of the Warblers.

1903, June.— Although my field observations about Lake Umbagog were brief and superficial this season they were sufficient to convince me that the Blackburnian Warbler was much less numerous than formerly if not actually a rather uncommon bird.

1896, June 2.— This morning on the hill at the western end of the Mason logging works Watrous and I found and took a fine nest and set of 4 fresh eggs of the Blackburnian. We found it by watching the female. We had probably disturbed her by shaking some of the trees nearby but when we first saw her she was feeding. In about ten minutes she went directly to the nest and remained in it for twenty minutes or more while Watrous had gone to the camp for his climbing irons. The nest was on the lateral branch of a slender young spruce which was growing up through a large rock maple. The nest was easily seen from the ground beneath looking very like a Chippy's. Watrous took the eggs and sawed off the branch with the nest.

1896, June 6. — One of the nests found by me on the 2nd (in the woods at the W. extremity of the Mason logging works) yielded today a remarkably handsome set of 4 eggs of the Blackburnian Warbler. Although they were perfectly fresh the female sat so closely that thumping and shaking the tree (a slender one) failed to start her, and when Watrous climbed it he nearly touched her before she slipped off. She then dropped like a stone to the ground over which she crawled and tumbled and fluttered with widespread tail and quivering wings much like a Water Thrush or Oven Bird and evidently with the hope of leading us away from the nest. Such a demonstration on the part of a tree-building Warbler is, I think, unusual. This nest was fully 20 ft. above the ground near the end of a long, slender branch at least 10 ft. from the main stem of the tree, a solitary and not very vigorous young spruce growing under some large hemlocks and yellow birches which cast a dense shade over the spot. I photographed the nest which we took successfully by bending over another tree within reach.

Dendroica virens virens (Gmelin)

Black-throated Green Warbler

Uncommon summer resident, regular on migration in small numbers
May 12, 1896–Oct. 3, 1894

The Black-throated Green Warbler is sufficiently near the northern limit of its range to be one of the relatively uncommon Warblers at Lake Umbagog. During the spring migration one or two birds daily with a peak of half dozen at the height of the flight represents the average season. This record could be matched in fall only in exceptional years; in poor years 4–6 birds a season would be all that Mr. Brewster would note. In the breeding season, there is no evidence that more than half a dozen pairs were found locally, even in the earlier years.

1896, June 14.— After the passage of the migration I found only two birds near Lake Umbagog, one about ¼ mile E. of River Point, the others at Errol Hill Pond, both ♂ ♂ in full song, the Pine Point bird at least certainly settled for the season and no doubt breeding.

Dendroica pinus pinus (Wilson)

Northern Pine Warbler

Unknown at Lake Umbagog; only once found nearby

1903, June 9.— Singing in white and red pine woods shores of Lake Pemisawasser, Norway. At least three different birds found during this same month at Shelbourne, N. H. by Walter Deane. I infer from this that the species must occur at Bethel, also, but I have not been able to find it there.

Dendroica palmarum palmarum (Gmelin)

Western Palm Warbler

Very rare fall transient, four records

1888, Sept. 17.— 3 shot near Lakeside; Oct. 9, one shot at Leonard's Pond.

1898, Sept. 30.— In some gray birches near Dr. Gehring's house at Bethel, Me., I found this morning two Palm Warblers. One bird was very tame and I had an excellent view of it, identifying it beyond question as a typical *palmarum*. I did not see the other so well but I am nearly sure that it belonged to the same form or race. Both birds uttered a soft *tsup*. They remained for some time in the top of a tall larch in company with a Kinglet (*calendula*) and some Myrtle Warblers.

1899.— On Sept. 26 a large mixed flock of Warblers visited the shrubbery about Dr. Gehring's house at Bethel. Among them were one *D. palmarum* and two *D. p. hypochrysea*. I saw all three birds distinctly and identified them positively.

Dendroica palmarum hypochrysea Ridgway

Yellow Palm Warbler

Uncommon to rare transient

May 11, 1897; Sept. 17, 1888–Oct. 19, 1889

The main migration of the Yellow Palm Warbler is strictly coastal in New England. It is of regular occurrence in much smaller numbers in broad river valleys with a north-south trend. Elsewhere it is a de-

cidedly uncommon bird, and this explains the paucity of records in the Lake Umbagog Region. Only twice in many seasons was the bird noted twice in fall, and in nearly half the years it was unrecorded. It is possible that the bird might occur regularly in spring, when it is an early Warbler, and the lack of records may be due to the fact that Mr. Brewster never visited Lake Umbagog earlier than May 11, 1897.

1894, Oct. 1.— On the marsh opposite I shot a typical specimen of *Dendroica hypochrysea*, a young bird. It came flying from the stubs next the river and alighted well out on the marsh where I found it running about on the mud in company with a Savannah Sparrow. It kept appearing and disappearing among the tussock grass and as I advanced flitted on before me giving me much trouble before I secured it.

Seiurus aurocapillus (Linné)

Oven-bird

Uncommon summer resident
May 12, 1897–Sept. 24, 1890

In the earliest years the Ovenbird was so scarce that in 1872 only three or four birds were seen the entire month. In later years it was much more generally distributed, but did not occur in any numbers. There was no sign of any additional numbers passing through on migration, and, as is usual, there were very few observations in fall.

1896.— Generally distributed but nowhere at all common. Found oftenest in woods free of undergrowth and on high land. Two birds singing on Pine Point during our stay.

1900, Sept. 15.— At about 10:30 p.m. an Ovenbird rose over the woods behind the camp and gave the warbling part of the flight song with much sweetness and vigor but omitting the *teacher* notes. The night was warm, calm and dark, the sky being obscured by clouds at the time.

Seiurus noveboracensis noveboracensis (Gmelin)

Northern Water-Thrush

Very common summer resident in favorable localities
May 12, 1896–Sept. 22, 1889

There is a marked spring migration of Water-thrushes through the Umbagog Region, but little sign of any return flight in fall. This is

probably in part due to the extremely early southward migration. Much of it would pass through this region undetected, since the local breeding birds are still fairly common and were noted in song as late as Aug. 18.

1896, May 30.— In the afternoon Watrous and I rowed over to Leonard's Pond. We first landed on the island where W. found two Water Thrushes' nests with, respectively, 4 eggs slightly incubated and 5 eggs far advanced. I had my hands full photographing these nests. One was in a large earth bank under and behind a curtain of earth and fine roots. Of this I made two photographs. The female was very nervous and fussy, chirping and calling up her mate the first thing. She would not go on the nest when the camera was near it but kept running rapidly about around the bank and the camera, examining the latter as well as the bulb of my rubber tube which lay several yards off with evident distrust. When started from the nest she would regularly run six or eight yards, crouching close to the ground and moving with a slow gliding motion, spreading her tail and half spreading and quivering her wings, sometimes turning back and gliding past me or just under the nest, making no sound nor tilting while behaving thus, but presently flying up to some branch or root to tilt and chirp with her mate. Both birds were very large and very yellow beneath. This was the nest with 5 eggs. The bank was of clean, fresh sandy loam with no vegetation. The nest was very bulky and outwardly composed wholly of dead leaves.

The other nest and its owner were wholly different. The nest was in the open, vertical face of a small and very old root bank which was densely covered with mosses and various small plants and grasses. The entrance to the nest was a sort of slit, narrow vertically but wide horizontally. The bird when startled merely dropped to the ground and ran quickly off under some fallen brush, and then flying up to a low branch or root, tilted and watched me in silence and apparently without apprehension. She did not once chirp and during the hour or more that I was busy with her nest her mate sang in blissful ignorance of his partner's danger fifty or one hundred yards away. If I stood quietly for a minute or two, the female would alight at the base of the bank, and running quickly up its slightly sloping face, would peep in for a moment and then entering settle down to her task, first arranging the eggs beneath her by moving them with her legs or feet swaying her body from side to side the while. She did not seem to mind or even notice my camera when it was set up within a yard of her. A sensible, placid little creature very unlike the other above described.

1896, June 5.— I spent most of the forenoon at Leonard's Pond where I took eight photographs of the Water Thrush at or near her nest from which I started her many times. She is wonderfully mild and patient under this almost incessant persecution. Not once this morning did she chirp for her mate or make any demonstration whatever. I had no difficulty in setting up my camera and focusing her on the nest at a distance of three feet or less. Indeed

when I wished to start her I usually had to shake the focusing cloth within a few inches of her face. Then she would slip off, run away a few yards, feed for a moment or perhaps take a bath and within a minute or two, if I permitted it, walk sedately into her nest often passing directly under the camera on her way. When I wished to get her to cross a certain selected spot of sunlight I had little difficulty in driving her over the exact place. She would often pause for a moment almost at my feet and look up at me with an expression of wonderment but without the slightest sign of fear. Poor, demure little creature! The four pretty eggs look as if they might hatch any moment.

1879, May 24.— I discovered this evening that the Water Thrush sings in the air like the Oven Bird. I saw one rise to the height of several hundred feet above the tallest trees and then descend, uttering its usual song, followed by a continued, tremulous, varied, and exquisitely tender warble. This termination is very similar to that of the Oven-bird. The bird descends on an inclined plane.

1896, May 26.— At 4:15 P.M. just as the clouds were breaking and the sun appearing after an easterly storm, our Pine Point Water Thrush mounted about 20 ft. above the birches (30 ft. trees) and sang on wing. There were two or three *whits* added to the usual preliminary two, then the usual day song, then a series of low, broken, warbling notes lasting about twice as long as the song proper and given while the bird was returning to earth on a long, gentle incline, the last note being uttered just as the singer got well down among the tree tops. This bird gives at least one and sometimes two flight songs every evening just as twilight is coming on, but hitherto I have not seen him do it. Twice he has repeated the day song three or four times in quick succession with warbling notes similar to those just described connecting the several songs. I think he was on wing the whole time.

1897, May 30.— At least six Water Thrushes could be heard from our anchorage and frequently four of these would sing in rapid succession, one beginning just as the preceding one ceased, producing the effect of a continuous Water Thrush song of four times the usual length. This happened so many times, indeed, that I became satisfied that it was not mere coincidence. These Water Thrushes also treated me to their flight songs a dozen times or more this evening, and I am positive that one of them went up in the course of eight or ten minutes three or four times. The flight song of this species puts that of the Oven-bird (which I heard also this evening) quite to shame.

This happened at Leonard's Pond between 4 P.M. and twilight.

1907, Aug. 5.— The Water Thrush is at times intensely curious. As I was sitting in my canoe this afternoon in a sheltered cove one appeared on the shore within three yards of me. By degrees it approached even nearer running about over some driftwood, now and then pausing to look at me intently with its large dark eyes. Even when I moved abruptly it showed no fear of me. It was an adult ♂ for it sang repeatedly in full rich tones. Its plumage appeared fresh and unworn. Although a rather plainly colored bird the Water Thrush is exceptionally neat and attractive looking. All its movements, too, are graceful and interesting.

Oporornis agilis (Wilson)

CONNECTICUT WARBLER

Very rare transient; only one record, Sept. 30, 1890

Oporornis philadelphia (Wilson)

MOURNING WARBLER

Common summer resident
May 24, 1881–Aug. 24, 1874

The Mourning Warbler frequently does not reach the Lake Umbagog Region until June, and it is after June 15 in some seasons that the full breeding population has arrived. The bird leaves at once after nesting is over, and was almost never noted in late summer. Indeed barring the year 1874, when it lingered in some numbers into August, the Mourning Warbler was encountered on only three occasions from early July on.

1871, MAY 30–JUNE 10.— Rather common. Haunting wood-edges and small clearings and grown up bushes. On the stage road between Upton and Poplar Tavern we heard no less than seven males singing in the course of a single morning; they almost invariably sing from the protecting branch of some dead stub, twenty or thiry feet above the ground. The ordinary note is precisely like that of the Maryland Yellow-throat. In addition they have a shrill petulant chirp inclined to be characteristic.

1872, JUNE 3–14.— Common in a rather limited locality on the side of Upton Hill. They haunted brush fences, old log heaps, and thickets of raspberry bushes, rarely far from the woods and usually along their edges. Sometimes a pair would be found in some small but sunny opening well within the forest, but never actually under its gloomy shade. In their habits and motions they resemble *G. trichas* but are more timid and retiring as well as very much harder to shoot, for they plunge into their favorite thickets on the slightest alarm. Several males were shot in the very tops of the tallest beeches and birches along the wood edges at least seventy or eighty feet above the ground. In these situations they showed much activity, chasing insects among the branches and frequently singing. Although they sang from elevated and exposed perches, much oftener than *G. trichas*, this practice seemed rather the exception than the rule the present season, for usually the song would be heard on or near the ground. It is a short but very sweet, rich warble sounding like *whees-whees-whees-whees, tu-tu-tu-tuo.* It varied somewhat with different sing-

ers, and was sometimes shortened to *whees-whees-tuo-tuo*. Occasionally they sang on wing soaring high in air like *S. aurocapillus*, prefixing a few extra notes to the ordinary ones, and at the end, closing their wings and dropping to the ground as if shot.

1879, May 26.— A male among fallen tree-tops behind the house eluded me in the most provoking manner, creeping about like a Wren among the debris. Sometimes he would appear within a few yards of me, disappearing almost instantly, and when next seen would be perhaps forty or fifty yards away. His gait was distinctly a "hop" but in other respects he resembled the Connecticut Warbler, especially in flight and in attitude when perched.

1908, Aug. 10. — From the edge of a crude little vegetable garden at the rear of Dr. Draper's camp on Spelman's Point, I started an adult ♀ Mourning Warbler in a matted bed of wild raspberry bushes that half-covered some old logs and fallen tops. The bird rose almost under foot and after taking a short, jerky flight like that of a Maryland Yellow-throat dropped into the tangle again. When I began screeping she reappeared in the top of a bush, peeping out at me shyly from among the leaves and uttering every now and then a monosyllabic chirp which reminded me by turns of that of the Maryland Yellow-throat and that of the Connecticut Warbler. Perhaps on the whole it is nearest that of the latter species for it has much the same metallic, insistent quality. This is the first time I have ever seen the Mourning Warbler at Pine Point.

Geothylypis trichas brachidactyla (Swainson)

Northern Yellow-throat

Common summer resident just south and west of Lake Umbagog; locally common in clearings northward.

May 14, 1897–Oct. 10, 1882

The Yellow-throat was formerly quite common in clearings near Lake Umbagog, but would appear to have decreased for a time a quarter of a century later. It was so regularly noted throughout September that there were definite signs of a fall migration, and in 1888 there was a marked flight, with the bird positively abundant from Sept. 4–11, and recorded daily until the end of the month.

1896, June 1–14.— Not nearly so numerous as formerly about the foot of the Lake, and near its head found only around the shores of Leonard's Pond where a rank second growth of willows, poplars and birches has succeeded the spruce forest destroyed by fire.

1903, June 4.— The Maryland Yellow-throat appears to be exceedingly numerous here. All the males sing nearly alike. I noted the song of one of them today as *wĭp-pe-we, wĭp-pe-pe, wĭp-pe-we, we.*

Wilsonia pusilla pusilla (Wilson)

WILSON'S WARBLER

A transient, uncommon in spring, very rare in fall; perhaps breeding once.
May 14, 1897–June 5, 1872; Aug. 23, 1873 and Aug. 22, 1896, the only fall records

1872, JUNE 2–5.— Perhaps half a dozen specimens in log-heaps and thickets along wood edges; none seen after June 5.

1879, MAY 29.— A male singing loudly and steadily in the plum orchard in the garden early this morning. The song is very like that of the Nashville Warbler, but less flowing and more abrupt, in fact almost explosive in character. It seemed to cost the bird a strong effort to produce it.

1903, JUNE 4.— There was a Wilson's Black-cap singing freely and steadily among the alders by the brook (along the Grover Hill road). Its song was *we-we-we-we-we-we*, all the notes on one key and without special emphasis on any of them. I suppose the bird was a migrant.

1896, JUNE 12.— After launching our boat (at Lakeside) under the old elm we paddled down into the steamer cove where just below the school house I was surprised to hear a Wilson's Black-cap singing. Landing I spent an hour or more searching for its nest. The male bird came within two yards or less and followed me about, resuming its song whenever I passed beyond certain limits within which I have little doubt that its mate and nest were somewhere concealed. The place was somewhat peculiar — low and springy ground with thickets of alders alternating with small openings and with many moss-covered mounds and boulders all of which I inspected with especial care. The male bird did not once chirp, but yet its manner led me to infer at once that it was settled and nesting.

1896, AUG. 22.— The bird seen on this date was in the alders near the little school house at Upton and within 30 yds. or less of the spot where I found a ♂ singing on June 12th last. Probably both were one and the same individual. The one seen today appeared to be an adult ♂ in full autumnal plumage. It was flitting about among the alders and once chased an adult ♂ Redstart; a few minutes later it had a noisy squabble with what looked like another bird of its own species.

Wilsonia canadensis (Linné)

CANADA WARBLER

Formerly uncommon, later common summer resident
May 17, 1897–Sept. 25, 1889

On migration the Canadian Warbler was always common in spring, and very seldom recorded in fall.

1871, May 30–June 10.— Generally distributed throughout the woods but nowhere very common; the females were evidently laying at the time of our departure.

1876, June 18.— A nest exquisitely concealed in a hole in the side of a steep mossy bank. The hole extending in about six inches and the entire nest over-arched by intensely green moss. Female sitting on four fresh eggs, she flew from the nest when we were within about three yards of her. Locality a moss-carpeted glade shaded by one or two large trees and in the heart of the woods.

1879, June 20.— Nest in green moss adhering to the vertical face of a root about four feet in diameter. I noticed the entrance hole, and looking in spied the female sitting. I stood within two feet of her for sometime; then she glided out, running over the ground with trailing wings and spread tail. For a while she was silent, returning occasionally to peer at me anxiously, then retiring among the leaves. Finally she began to chirp sharply. The male did not appear.

1896, June 10.— Abundant during migration, very common afterwards. Frequents high and low ground and all sorts of forest growth indifferently, the only essential being the near presence of moss-covered ledges, boulders, or steeply sloping banks.

1908, Aug. 10.— A bird singing freely in the woods on B. Point about 9 o'clock this forenoon (sun shining bright and hot at the time). Its song was fuller, richer, more varied and more prolonged than I have ever known it to be during the breeding season. Indeed the bird seemed to be carried away by its own music and to outdo itself. I heard one singing in the same place and in much the same manner a few days ago.

Setophaga ruticilla (Linné)

American Redstart

Common summer resident
May 12, 1881–Sept. 29, 1896, and Oct. 10, 1888

1876, May 31.— Exceedingly abundant. All the males seem to be adult birds; of hundreds which I have seen singing not one has been immature.

1896.— One of the most abundant and universally distributed birds of this region, quite as numerous in the heart of the forest on high ground as along rivers and about clearings frequently in the forest thickets of mountain maple in windfall openings and along old logging roads. Fully 90% of the ♂ ♂ seen this year were in immature plumage.

1900, Sept. 3.— On land (at Pine Point) I found the woods about the camp alive with small birds, but I was too busy to look them over thoroughly and recognized only a few among which were a Redstart, an Ovenbird and a Winter Wren, the first of which was singing freely.

MOTACILLIDAE

Anthus spinoletta rubescens (Tunstall)

American Pipit. Titlark

Unrecorded in spring; regular transient in fall, often abundant
Sept. 7, 1888–Oct. 25, 1883

The absence of spring records is perhaps due to the fact that Mr. Brewster never visited the region early enough. In fall the Pipit was noted annually in varying numbers. It was notably abundant in 1883, 1887 and 1888, and was very scarce in 1897, when the marshes about the Lake were covered with water during the entire period of its migration.

1882, Oct. 9.— We found Titlarks abundant this morning along the Cambridge River below the Lake House. They were very wild and restless during the early morning hours, whirling about over the marshes, piping as they flew, seldom alighting, and starting off at the slightest alarm. Later in the forenoon the flocks seemed to have broken up, and we found them singly or in little companies of three or four, feeding along the muddy banks. They often skulked in among the tussocks but they were exceedingly tame and we could paddle our "birch" within two rods of them. They often alighted on the stubs when startled and three or four times they perched among the leaves of a tall maple. I never saw them alight in a leafy tree before. We probably saw fifty in all. They wag their tails exactly like a Water Thrush which they otherwise resemble.

1882, Oct. 13.— Saw a small flock and a few single birds but their numbers are fast dwindling.

MIMIDAE

Dumetella carolinensis (Linné)

Catbird

Rare and irregular summer resident
May 12, 1881–Sept. 24, 1873 (at Bethel)

One or more pairs of Catbirds were always found near Bethel and Colebrook, N. H., but north and east of these points it was rare and irregular. All local records are listed below.

1872, JUNE.— rather rare, breeding.

1876, JUNE.— not uncommon here this season.

1879, MAY 25.—one in the garden.

1881, MAY 12.—one near Poplar Tavern.

1888, SEPT. 12.—one seen.

1896, MAY 21.— Early this morning I found a Catbird in a thicket of raspberry and elder bushes by the roadside in the Brown clearing. It was silent, listless and tame, appearing to be tired as if it had only just arrived which, indeed, must have been the case as I have passed the place every morning for the last three days.

1896, MAY 22.— one on the island in Leonard's Pond.

1897, JUNE 9.— A Catbird appeared on the island in Leonard's Pond and sang for an hour or more on the morning of June 5. We heard nothing of him on either of the following two days, but he was singing there freely yesterday and again this morning, so he will probably stay and breed.

1897, JUNE 12 and 13.— another at Lakeside.

1903, JUNE 12–14.— A Catbird was singing yesterday and today in a thicket opposite the mill near the steamer landing where, according to Alva Coolidge, he has been constantly seen and heard for the past month or more.

1907.— pair breeding at Lakeside.

Toxostoma rufum (Linné)

BROWN THRASHER

Very rare visitant

1881, MAY 12.— two males singing a few miles north of Bethel.

1897, MAY 11.— one at Bethel.

1897, MAY 16–20.— For nearly an hour this morning a Brown Thrasher, the first that I have ever noted here, was in full song at the base of B. Point opposite our anchorage, on the Lake shore. From what the river drivers tell me I think that there must be another on B. Meadows. They believe it to be a Mockingbird.

1897, MAY 17.— The Brown Thrasher sang again this morning on the shore at the base of B. Point. I could hear him faintly but distinctly from the hilltop behind Lakeside, a distance of fully half-a-mile.

1903, JUNE 9.—one at Norway.

1905, SEPT. 3–8.— one at Bethel.

TROGLODYTIDAE

Troglodytes aedon aedon Vieillot

EASTERN HOUSE WREN

Very rare summer resident, formerly regularly as far north as Bethel.

1871.— one pair nesting at Bethel.

1880.—May 18 male arrives, Lake Umbagog; June 8—nest and eggs collected.

1881, MAY 11.— several at Bethel.

1896, MAY 15 and 16.— a male on Birch Point. A resident of Bethel, a man of about 60 years of age, tells me that House Wrens have been decreasing in this region for many years. When he was a young man they were very common, breeding in almost every orchard. Now he does not see on the average one pair in a season.

1897, MAY 18.— one near Lakeside.

1897, JUNE 15.— While on the houseboat this morning I heard a House Wren sing a number of times among the stubs near the base of Birch Point where I found a bird of this species last year.

1907, JULY 22.— Bethel (about 2 miles north of village on road to Newry). Early this month a nest of the House Wren containing 7 eggs was taken by Alva Coolidge at Upton, Maine. It was in the old Abbott Mill (near the Lake House) in a space between the timbers. The bird invariably went to and from its nest through the open side of the mill.

1908, JUNE and JULY.— one male about Bethel.

Nannus hiemalis hiemalis (Vieillot)

EASTERN WINTER WREN

Common summer resident
May 12, 1881–Oct. 23, 1886

The numerous extracts from the journals given below beautifully bring out the status and life history of the Winter Wren, one of the features of bird-life in the "North Woods."

1896.— Very numerous at Pine Point and in the Mason logging woods, one at Sweat Meadow (June 5), three near Lakeside, one on knoll behind Lake House, none up Cambridge River (June 12). This is the summary. The bird was evidently much scarcer than of yore at the foot of the Lake but in the Pine Point and Mason woods as numerous as I have ever seen it anywhere.

The height of its singing period was from May 25 to June 5. Before and after these dates it sang chiefly at early morning and late evening. We found 9 or 10 "cock-nests" but none with eggs or young.

1871, May 30–June 10.— Common. The males sang at all times of the day but especially in the early morning and just at sunset. So shy were they, that we did not take a single specimen, and only once did I get so much as a sight at one.

1872, June 2–14.— Although these Wrens were numerous and continually singing we did not succeed in getting a shot at any of them.

1874, Aug. 5.— Came upon a large brood of young near the Stone Path. They were very tame, one of them coming up almost within reach of my hand as I stood motionless. They kept up a continual calling in fine, shrill whistling tones, which reminded me of that of certain Thrushes during the breeding season.

1876, May 27.— This species is about the shyest bird in spring that I have ever tried to shoot. It is almost impossible to get within range of one or to see him when you do. I saw one today go down between the logs of a rude bridge and walking out on the structure very cautiously spied him hopping about directly under my feet chasing spiders and occasionally picking an aquatic insect from the surface of a pool of water. The song of this Wren is one of the best to be heard in this region. The notes are remarkably like those of a music box both in tone and method of delivery.

1879, May 28.— Ever since my arrival a male has sung regularly in the woods behind the house. Today I found the female at work upon her nest under the trunk of a fallen tree covered with brush wood. She came and went at frequent intervals with her bill full of shreds of green moss. This she collected only a few yards from the spot to which she carried it, half-running, half-flying over the ground, invariably keeping concealed under the side of a fallen tree-top. When she emerged from beneath the roots where the nest was building she invariably paused a moment and quivered her wings tremulously, at the same time rocking her body to and fro.

1880.— several sets of eggs collected, as well as several false nests found. One presented to Capt. Bendire for the Smithsonian Institute.

1898, Aug. 31.— A brood of young scarce able to fly came about the camp this forenoon. They kept calling to one another as they dodged in and out among the fallen logs uttering a fine, wiry *tree-e-e* something like that of the small spotted Thrushes. When I disturbed and scattered them they *chirruped* at me in soft tones. This chirrup is unlike any other bird call that I can remember. I think it is peculiar to the young as the *tree-e-e* certainly is. An old bird with this brood called *tick, tick.*

1895, Sept. 25.— Late this afternoon a Winter Wren which had passed the day in or near our camp wood pile sang several times in an undertone, but giving the full song in a finished manner.

1908, Aug. 17.— It is not very unusual to find Winter Wrens in rather open places at their seasons of migration. Nor do they cling at all times closely to

their forest coverts when on their breeding grounds. Twice this afternoon, while skirting the shores of the lakes in my canoe, I started one a rod or more from the nearest trees or bushes, among large boulders at the very edge of the water, where it may have gone to drink, although I suspect it was searching there for spiders or other insects. I have repeatedly found Winter Wrens among tall grass on the Lake Shore but never before, I think, among perfectly bare rocks such as those just mentioned.

1896, May 30.— Early this morning for nearly half an hour I heard two Winter Wrens singing within a few rods of me, one on either side and one beginning just after the other stopped. They fairly flooded the woods with their rare music. As I stood listening, thrilled by the wonderfully loud, clear notes as they flowed on, now smoothly and rapidly, next halting or tripping a little, I doubted if, after all, North America possesses a finer little bird musician than the Winter Wren, provided he be heard in the depths of one of these northern forests, when the air is perfectly still and the listener not over twenty yards away. Certainly it is the most *satisfying* song we have.

CERTHIIDAE

Certhia familiaris americana Bonaparte

BROWN CREEPER

Formerly a common summer resident, occasionally wintering

In earlier years the Creeper bred commonly in the Lake Umbagog Region, and its habits at this season were a special subject of study (cf. Brewster, Bull. Nuttall Orn. Club, 1879, pp. 199–209). In 1896 Mr. Brewster wonders at its decrease.

1896, June 12.— The pair of Creepers which mated at Pine Point and a bird heard singing on Cambridge River, June 12, were the only ones met with during our researches of this season. What has become of the great numbers that used to breed about this Lake? Something must have happened to them last winter or in the winter of 1894–95. They were very scarce in Mass. last winter and spring.

Whether or not the cause suggested is correct, the Creeper never increased again, and an entry in the diary for 1903 proves that a marked decrease had apparently become permanent.

On migration the Creeper was always of common occurrence in the fall. In general the main flight was in late September and early October, but in 1885 it was nearly three weeks later; a maximum of 8 birds was seen on Oct. 22, and it was noted singing on the 26th.

There was no sign of any spring passage of transients; the breeding birds arrived rather suddenly early in May.

1879, May 31.— Nest with set of six eggs behind a scale of loose bark on the trunk of a dead fir. Height ten feet; female sitting; eggs incubated four or five days. After I had removed the nest—bark and all—the female returned, examined the spot where it had been, in evident bewilderment, then alighted at the foot of the tree and ascended it to the top, searching it closely. This she repeated at least a dozen times in succession. The song of this species is not powerful but exceedingly sweet and wild. It consists of four notes distinctly but rather quickly given and most resembles the song of *Parus carolinensis*.

1879, June 14.— A nest containing young which the mother was feeding. She made frequent trips to and from the tree going only a few yards away and always securing a billful of food for her brood on one of the neighboring tree-trunks. The young were absolutely silent when being fed. The mother watched me also in silence and without apparent alarm while I inspected the nest. This nest was a stub that stood just outside the woods on the shore of the Lake, and surrounded by water. It was not over four feet above the surface of the water. Some of the materials of which it was composed hung down an inch or two below the bottom of the bark-scale. I also found two nests, both old ones, behind the same scale of bark but on opposite sides. This piece of bark was a huge sheet adhering to the trunk of a dead fir that stood in the water on the extremity of a point. One nest was probably a last year's one, it still contained an unhatched egg, bleached, and cracked. The other nest was evidently of older origin and probably built two years ago. I regard both these nests as the former homes of the same pair of birds that built the first nest found by me this season; the site of the latter being not over fifty yards away from this spot.

1880, May 29.— Set I–5. Nearly hatched; ash stub over water; height five feet. The character of this nest was unusual. The bark scale was so small and so closely attached to the tree that it seemed impossible that there could be space left within for the nest. We discovered it by seeing the female alight on the trunk and disappear behind the bark. I tapped on it sharply but she refused to come out; looking in I could see her closely squatted on the nest, her little form palpitating visibly with fear. Upon paddling off a little way she came out.

1880, June 3.— Visiting the nest found May 21 and prying open the bark, the young, four in number, started simultaneously and flew out. One falling in the Lake was seized and instantly swallowed by a huge bull-frog; the others when held against the trunk of a tree instantly crept upwards using the short tail precisely in the manner of the old bird.

1881, May 27.— On the 14th we saw a Creeper carrying building materials behind a scale of bark. We approached rather too near when she dropped her load and eyed us suspiciously. Today we found that nothing had been done to this nest since our former visit; we examined it carefully, however, and its

position merits description: The tree was a large red maple standing in the water and perfectly dead. The bark had simply cracked in a long narrow slit and held fast both top and bottom. The space within was very narrow. I have never seen a Creeper's nest before on a maple nor have I seen one in a bark-scale which was not separated from the trunk below.

1896, May 29.— On the way over to Osgood's campground I found a Brown Creeper's nest under a scale of bark on a small balsam stub about 30 yards from the Lake. The female was hard at work taking strips of the inner bark from an arbor vitae which stood only a yard or two from the stub. She took only one at a time but they were all large pieces (4 to 6 inches long). She had a good deal of difficulty in getting them in under her bark roof and after struggling for a moment with an especially heavy piece she dropped it. She regularly made at least one trip each minute. I think she was laying the foundations for the nest but I did not dare go examine it.

The male kept close by her the whole time flying with her back and forth between the two trees but not offering to help her so far as I could see. Both birds eyed me suspiciously and I should not be surprised if they deserted this nest. It is strange that I have not heard the male singing on the point. The Brown Creeper is apparently one of the rarest birds of this region this season.

1896, June 8.— Visited the nest of May 29th this morning. 4 eggs today. Spent nearly an hour photographing it. Birds not seen. Have heard the male singing only once (on June 3) and then he sang only two or three times. Have found but this one pair this season.

SITTIDAE

Sitta carolinensis carolinensis Latham

White-breasted Nuthatch

Rare summer resident, regular transient in fall; known to have wintered twice at Bethel.

Early spring–Oct. 29, 1884

A pair or two of these Nuthatches occasionally nested in the flooded forest at the outlet of Lake Umbagog, and much more rarely it was found at Pine Point or in a stand of deciduous timber elsewhere. In fall, however, it was recorded annually in September and October, usually one to three times a season, but in 1889 it was noted almost daily with a maximum of five birds on September 30. It will be apparent, therefore, that there was some source of supply relatively near the Lake, and the occasional breeding pairs may have represented an overflow from a resident population in nearby localities.

1881, May 20.— Set B–5.— Fresh — nest in a natural hole in a red maple stub which stood in the water; hole descending about six inches. I found the nest by watching the male who every few minutes would fly to the hole with a large worm and utter a low *hank*, when the female would extend her bill and take the morsel from him. Once she refused it and he instantly swallowed it himself. When my guide began to climb the tree the female flew from the hole and disappeared, neither she nor her mate returning till after we had left the spot. I saw a pair of these Nuthatches in precisely the same place last season.

Sitta canadensis Linné

Red-breasted Nuthatch

Rather common summer resident; erratic at other seasons, often abundant in fall, occasionally entirely absent; occasionally wintering in some numbers.

1871, May 30–June 10.— Rather common but silent and retiring.

1872, June 2–14.— More numerous than last year but by no means abundant. Although all the specimens taken were adults their notes at this season are uttered in a high nasal tone not heard in autumn, and are kept up incessantly like the cries of young birds.

1879, June 23.— Saw one catching flies precisely in the manner of *Sphyrapicus*.

1880, May 19.— Nest in red maple stub over water; tree very rotten; height about twenty feet; hole on west side about two feet from top. A quantity of pitch, which my guide pronounced unmistakably *spruce*, about the entrance and inside its tunnel. Stub standing in five feet of water twenty yards from the shore, which was heavily forested with hemlock, spruce, and hard woods. Female sitting; she would come out when we rapped on the stub but almost immediately return to her eggs.

While my guide was cutting off the stub about two feet below the hole, she repeatedly alighted at its entrance.

1880, May 20.— Nest in birch stub, in the woods bordering Cambridge river. Height twenty feet. Spruce gum thickly smeared about the entrance of the hole and over the whole face of the stub for a distance of six inches. Nest composed of the fine inner bark of the poplar. Our attention was drawn to this nest by hearing the birds uttering a peculiar, continuous whining noise. This was apparently the call of the male to his mate for she soon emerged from the hole answering him when both went off together. The stump was so rotten that we had to cut it down. The top broke off falling into a brush heap below, cracking some of the eggs, but breaking none of them. Shortly afterwards the female returned and in evident bewilderment hovered in the air over the spot where the tree had stood, vainly searching for it.

1881, May 27.— Cut open two nests which were found on the 14th. One which the birds were then excavating, was smoothly finished today, but there

was no nest and no pitch. To the other the female was carrying bark on the 14th; this nest was finished today but contained no eggs and had but little pitch. Both birds, however, were there, and both were *bringing pitch* and plastering it on the bark below the hole. I watched them a long time. They brought it on the tips of their bills in little globules, alighted against the lower edge of the hole, and then tapped it on in various places as low as they could reach, but without shifting their foothold.

1883, Oct. 17–31.— During the period indicated above these Nuthatches have literally swarmed. I noticed no diminution in their numbers up to the date of my departure (Oct. 31). They were especially abundant about the Lake Shore and their habits and notes differed not a particle from those in spring. Their whining cries are more conspicuous in the autumnal silence, however. It is a significant fact that this species was nearly wanting at the Lake last year in October, whereas it was abundant in Mass. This year I have not heard of it in Mass.

1885, Oct. 25.— For the past two weeks the whole country about here has been swarming with them. It is impossible to go anywhere in the woods without hearing and seeing dozens. They are found in company with titmice, kinglets, etc., and alone, or rather two or three together. They are very noisy, especially of a still frosty morning. Perhaps their exceptional abundance is due to the fact that the spruces, balsams and pines are loaded with cones this year. The Nuthatches feed freely on the seeds of these cones as I observed this morning. One that I watched for some time with a glass was engaged in carrying seeds from a fir to the upper branches of a yellow birch, where he secreted them in a bunch of usnea moss, tamping them in firmly with his bill.

These Nuthatches are both tame and curious. If I stand still and chirp they come down from the tree tops and alight within a yard of my head, hopping about and eyeing me wonderingly.

I have repeatedly seen one sitting crossways in the slender upper twigs of some tall yellow birch, quivering its wings (half opened) rapidly and calling incessantly. This has usually occurred about sunset. The bird's companions meanwhile were pursuing their usual search for food among the neighboring branches.

1896, June 12.— About in its usual numbers, perhaps rather more numerous than in former years. Very noisy up to about June 1. Very silent after this date.

1896, May 23.— This afternoon Jim and I accompanied Watrous to the nest of the Red-bellied Nuthatch, which he had found in the morning to the eastward (where Mason logged several winters ago). We took a long rope, axe, saw, etc. The nest was in a balsam about 15 feet above the ground. Watrous sawed off the stub thrice, once just above the hole, once a little below it, and again below the nest which contained a set of six eggs so near hatching that it is doubtful if we can save them. The female was sitting. She came out when we tapped hard on the stub, and we did not see her again. There was much pitch about the hole.

1896, May 24.— Returning from a walk to Osgood's camping ground I found a Red-bellied Nuthatch's nest in a paper birch stub on the edge of the little opening at the west end of the point. The female was sitting, but she came out when I rapped at her door. I spent a good part of the remainder of the day watching this nest with great interest and some profit. Quite regularly at intervals varying from 10 to 15 minutes the male came to it with a bill full of insects — large, gauzy-winged Diptera they looked like. He always alighted at exactly the same spot a little below and to the right of the hole and invariably, just after getting his foothold, called *whee-whee-whee* (a note new to me) in low but incisive tones. Instantly the bill of the female would appear at the opening (I could see nothing but her bill) and after thrusting the food into it the male would fly off in silence for a fresh supply.

1896, May 25.— The rest of the forenoon was devoted to the Nuthatch's nest found yesterday at the end of our point. Jim had put up a board on the side of a birch about two feet from the hole and on this board I adjusted my camera and snapped at the male Nuthatch when he came with food for his mate. I made six or eight exposures with fair success, but I should have done better had the board been placed 8 or 10 feet from the hole for the bird was never quite still and I could not give time enough to get clearness of definition and firmness of outline. I got one picture of the female as she was clinging to the stub just before entering the hole. This was a difficult task for she usually flew in, without so much as touching her feet to the edge of the hole. The male fed her at intervals of from 10 to 20 minutes and even once twice within 5 minutes. He usually brought what looked like larvae held lengthwise in his bill. Pretty, interesting little creatures these Canada Nuthatches!

1907, Jan. 19.— Canada Nuthatches are common in the Glen Woods just at present, associating with Chickadees (of both species) and with Golden-crested Kinglets. I seldom find more than two of the Nuthatches together, however. They were very noisy this forenoon (10–11:30). Twice I heard two performing what seemed to me an antiphonal duet, one bird uttering the usual nasal whining, the other a *kec-kec-kec* etc., given rapidly and practically without cessation for *minutes* at a time and sounding at a distance very like the barking of a Red Squirrel. These *kec* notes, however, are really softer and more evenly continuous than are the coughing ones of the Squirrel, as I had ample opportunity for determining this morning by actual comparison. I watched one of the Nuthatches as it whined almost incessantly for several minutes in response to the barking of another concealed not far off in dense evergreen foliage. The bird I saw was perched on the topmost spire of a tall living balsam, where it sat rather erect, turning its head from side to side, jerking its tail and flirting its wings, with great animation. The duets just described were antiphonal in the sense that one bird invariably used a distinctly different set of notes from those given by the other. Both birds, however, were usually calling at the same time. They seemed very excited and eager. The Chickadees with them showed no unusual excitement.

PARIDAE

Penthestes atricapillus atricapillus (Linné)

BLACK-CAPPED CHICKADEE

Common permanent resident, abundant in autumn

1871, MAY 30–JUNE 10.— Common but very silent and inconspicuous. Found two nests in birch stumps, one June 5 with five and the other June 9 with four fresh eggs.

1896, JUNE 14.— About as numerous as in Massachusetts. Found everywhere in every kind of woods; no more numerous near the Lake than back in the forests on the mountain side.

1885, MAR. 7.— Saturday I went with my daughter for a day's fishing. At noon we built a fire and spread a robe on the ice, laying our lunch on one side while we sat on the other. Soon after this four Chickadees appeared, doubtless attracted by the smoke. As we fed them they came nearer and nearer until they ventured on the robe eating out of our plates. Then one alighted on a piece of meat which my daughter was holding in her fingers and another on a biscuit that I held. They repeatedly passed between my arm and body as I lifted food to my mouth and even brushed my bread with their wings. Finally one alighted on my daughter's finger grasping it fiercely as it helped itself to the food she was holding. They eat canned beef, mince pie, sponge cake, bread, and, to my surprise, a quantity of orange pulp, although they paid no attention to the bright-colored peel lying on the ice. We prolonged our lunch nearly half-an-hour and they stayed until we finished. I know you would have enjoyed our dinner-party. I am going out tomorrow to see if they will come again. (Extract from a letter written by Manly Hardy, March 10, 1885. The episode happened about 8 miles from Bangor, Me. on Holbrook's Pond.)

1896, SEPT. 9.— At B. Brook Point a band of Chickadees were roaming about in the woods. They evidently wanted to cross the cove — about ¼ of a mile wide — but were half afraid to venture on even so short an aerial journey. They made several false starts, rising 50 feet or more above the tree tops, starting out over the Lake, chirping encouragement to one another and turning back after going 100 yards or less! Finally they divided into two parties and went across.

Jim found a Chickadee in mid-lake yesterday morning just after the fog cleared, so it seems that they sometimes perish by drowning as the Warblers, Vireos, Sparrows and other small birds so often do.

Penthestes hudsonicus littoralis (Bryant)

ACADIAN CHICKADEE

Permanent resident, much less common than the Black-capped Chickadee

In earlier years when there was plenty of primeval spruce forest, and larch and arbor-vitae swamps were frequent, the Hudsonian Chickadee was not uncommon in summer. It was regularly noted in fall, but never in the abundance of the Black-cap. In later years only a pair or two could be found in summer, but the species still occurred regularly in fall and winter in small numbers.

1872, JUNE 3–14.— Rather numerous in a belt of firs and spruces bordering the Lake. Specimens were taken which, from the softness of the skull, etc., we judged to be young birds three or four months old. Others, evidently adults, were apparently about to breed. The young were met with in parties of six or eight, frequently accompanied by a pair of *P. atricapillus*. They kept invariably in the thickest spruces and firs, usually near the tops of the trees. In motion they resembled *P. atricapillus* but were rather less animated and active. They were ordinarily silent and hard to find. What I took to be the song of the male was a sharp *che-day, day*, very different from any note of the common Chickadee.

1873, AUG. 14.— Abundant in the larch and spruce woods bordering the bank of the Cambridge River above the dam.

1873, SEPT. 22.— None of the notes of this species resemble those of the Chickadee. The ordinary chirp is much louder and more petulant. Another note frequently heard is a sharp *chip, chee-chee, chee* sometimes preluded by a sharp *che-chit* or *chee-chit-chit*. These notes are the only ones that I have heard. The bird, however, will sometimes give them all in rapid succession in a sort of sputtering song. This Titmouse is, on the whole, a more silent and less animated bird than the Chickadee. It keeps almost entirely to the firs and spruces, usually rather high up. Its flight is heavier, and clumsier than that of the common species. As a rule it does not associate freely with *Parus atricapillus*, although the two are often found near one another.

1882, OCT. 8–22.— By no means common, but a little company of from two to five was usually to be found in every larch or arbor-vitae swamp. Occasionally a single bird would occur in flocks of *Parus atricapillus*, but usually the present species kept apart from other birds.

1889, OCT. 11.— A flock of five or six came straggling in to shore this morning from the Lake which they had crossed where it is more than a mile wide.

1896, JUNE.— two pairs only located.

1907, JAN. 21.— A mixed flock that lingered long about a sunny opening in dense, well-grown woods (the "Glen Woods") of balsam, arbor vitae and white

pine, contained four Hudsonian Chickadees, five common Chickadees, two Golden-crested Kinglets, a male Canada Nuthatch and a male Hairy Woodpecker. A Log Cock called once not far away and Lesser Redpolls flew over at frequent intervals. I had a good opportunity to watch the Hudsonian Chickadees at close range in a clear light and stayed with them for half an hour or more, making the following notes: For a time they kept high up in the tops of some tall balsams working among the cones, apparently extracting and eating the seeds. The Nuthatch was with them here for several minutes, but the Black-cap Chickadees remained lower down. The Hudsonians differed from the Black-caps as follows:— they were much less noisy (often passing minutes at a time in absolute silence); they seldom hung head downward; they hopped and flitted among the branches more actively and ceaselessly, spending less time in one place; their shorter tails were less in evidence; they flirted their wings much more with a more nervous, tremulous motion very like that of Kinglets; the black patch on the throat was less conspicuously shown; they appeared shorter, "chunkier" and fluffier; the chestnut brown on the flanks was very apparent. Altogether they seemed to me less attractive and interesting than the Black-caps. In their manner of flitting ceaselessly from twig to twig, as well as by the tremulous motions of their wings, they reminded me very forcibly of Kinglets. I heard the explosive *tch-day, day* a few times and the abrupt *tch-tchip* once. They did not once give the low soft *chip* so constantly uttered by the common Chickadee.

SYLVIIDAE

Regulus satrapa satrapa Lichtenstein

Eastern Golden-crowned Kinglet

Uncommon summer resident; abundant in autumn; known to winter at Bethel.

In 1871 Mr. Brewster regarded this Kinglet as breeding commonly. In 1872, however, he listed it as "rather rare," and thereafter it was an uncommon species in the nesting season. In fall it used to occur in great abundance. In 1896 Mr. Brewster noted its marked decrease, and thereafter, even in fall, the numbers recorded were very much less than in the preceding fifteen years.

1871, June 6.— A female shot today had evidently been incubating for sometime. These Kinglets are common this year especially in arbor-vitae swamps and thickets of firs.

1882, Oct. 8–22.— Exceedingly numerous, far more so than they ever are in Massachusetts. Usually seen in mixed flocks on high ground. Abundant up to the time of my departure.

1885, Oct. 22.— Very numerous for the past two weeks. I have heard the ♂'s in nearly full song on several occasions and today one sang fully as loudly and completely as in spring. At least three-fourths of the birds seen have been females.

1896, June 2.— We also followed a Golden-crested Kinglet to her nest which was very similarly placed, only it was hung beneath the branch instead of being on it, like the Blackburnian's. The tree was also a young and slender spruce. Both nests were about 30 ft. above the ground. The female Kinglet sat very close. Her nest was full of eggs and newly hatched young, Watrous said. He could not look into it and he tried vainly to count the eggs and young by touch. He thought there were 9 or 10 of both.

1896, June 10.— Something has happened to these Kinglets. They were very scarce in Mass. last autumn, winter and spring and so scarce this season at Umbagog that I heard in all probably only four different males. Probably like the Bluebirds they were nearly all killed in the South during the winter of 1894–95.

Corthylio calendula calendula (Linné)

Eastern Ruby-crowned Kinglet

Uncommon transient

May 15 and 16; Sept. 16, 1904–Oct. 19, 1889

The spring migration of the Ruby-crowned Kinglet is earlier by two weeks than Mr. Brewster ever arrived, so only twice did he record the species at the end of its stay in the Umbagog Region. In fall it was of regular occurrence. In some seasons only two or three birds were noted; in others the species would be present for several weeks, and fifteen or twenty individuals would be recorded. It is clear from the detailed diaries that this bird is less numerous in the Umbagog Region than in eastern Massachusetts, and never occurs in the lavish abundance known in the Connecticut and Hudson river valleys.

TURDIDAE

Hylocichla mustelina (Gmelin)

Wood Thrush

Casual visitor; one record

1896, May 14.— After tea we walked to the Pearly White farm. Reaching White's we sat down on a knoll on the edge of a grove of young pasture spruces.

Then a Wood Thrush gave his sharp rattling challenge (*whit-tit-tit-tit*) a dozen times or more within thirty yards or less. No mistaking this call in this still evening air. Watrous heard it first and at once exclaimed "There's a Wood Thrush!" I was making a noise at the time and the notes failed to reach my ear. So I replied "There are no Wood Thrushes in this region," but the next instant I had to acknowledge my mistake.

Hylocichla fuscescens fuscescens (Stephens)

Veery

Local and uncommon summer resident
May 13, 1896–Sept. 2, 1905

The Veery was a common breeder at Bethel, and very common around Norway, but very local in the Umbagog Region proper.

1896, June 13.— About as numerous as in former years. Of local distribution, most numerous in the swampy woods along Cambridge River, not found at all in the Pine Point forest. In fact it was noted only once at the head of the Lake, Leonard's Pond May 22. Three pairs settled near Lakeside, in birch, poplar and alder thickets along the Lake shore.

1879, June 11.— Set of four eggs incubated about two days. Nest in the top of fallen fir, about a foot above the ground. The female sat closely and after being started off her eggs, showed much anxiety, coming around and uttering her complaining *heugh* incessantly. Swampy woods bordering Cambridge River. A few other pairs seen but they are not common anywhere.

The night call of migrating Veeries was often heard at Lake Umbagog. It was not until 1907 that Mr. Brewster settled the authorship of these notes to his entire satisfaction, as the extract from the Concord journal shows.

1888, Sept. 1.— Last night was still, dark and misty. Thrushes were flying in extraordinary numbers all the evening. I heard them for nearly two hours as I lay in bed and their calls at times were almost incessant. I suppose most of them were *T. swainsoni*. (I now feel sure they were Veeries. 1907.)

1907, August 20 (Ball's Hill, Concord, Mass.).— When I awoke this morning the sky near the horizon line in the east was glowing with the light of approaching dawn, but the woods still slumbered in almost total darkness. Two birds were calling to one another among the oaks on the hillside just above the cabin, both uttering a note familiar to me since boyhood but concerning the authorship of which I have been hitherto in doubt. It is a short, staccato cry, commonly monosyllabic, but not infrequently divided into two syllables,

given with either a rising or a falling inflection, usually clear and resonant but sometimes guttural and occasionally even harsh or strident. Although thus variable in form and tone it possesses nearly always a wild, almost weird quality which makes it a peculiarly interesting and indeed attractive sound. It is so very loud and penetrating as to carry fully a mile when the air is still and it is positively startling in its abrupt intensity when coming from near at hand. I have heard it only by night and oftenest at Lake Umbagog, late in August or early in September when heavy flights of Warblers were passing. Often when lying wakeful in my tent at Pine Point have I listened to it for hours in succession, studying its alternating variations of inflection and intonation and speculating fruitlessly as to the identity of its author. On these occasions it came invariably from birds which quite evidently were on wing at no great height above the tree tops and moving swiftly southward. During some nights they seemed to be passing in endless procession yet rarely in close companionship.

This I inferred from the fact that it was exceptional to hear more than one of them in any given direction at any one time and equally so for many minutes to elapse when none were noted. Not infrequently the last faint call of one that was just passing out of earshot to the southward would be almost immediately followed by the first audible cry of another approaching from the northward. Flying thus singly, at widely spaced intervals, yet perhaps within distant hearing of one another, mingling their crisp, incisive voices with the feeble lisping ones of innumerable migrating Warblers, the mysterious birds would journey almost ceaselessly southward along aerial pathways lighted only by the moon or by myriads of twinkling stars. Their calls which were seldom given oftener than once every eight or ten seconds and sometimes much less frequently, reminded me by turns of those of certain of our waders, of the autumnal note of the Rose-breasted Grosbeak and of the loud, explosive cry of the Crested Flycatcher. On the whole, however, they resembled most closely the night calls of the Hermit Thrush. Indeed I was inclined for a time to refer them to that species until I learned that the birds making them habitually departed for the South before many, if any, of the Hermits had left their breeding grounds. This consideration ruled out Swainson's Thrush, also. The Veery I did not think of, even as a possibility, for it is the least common of the Thrushes which breed about Lake Umbagog and I have hitherto had no reason to suspect that it ever occurs there numerously in autumn as a migrant from regions still further north. That this must be the case, however, will appear from what I am about to add concerning the experience referred to in the opening sentences of this entry in my journal.

The two birds heard, early this morning, in the oaks near the cabin called almost incessantly for ten or twelve minutes, giving practically every variation known to me of the sounds which I have just described at such length. As the light increased I noticed that their voices were changing gradually and beginning to resemble those of Wilson's Thrushes. At length one of them uttered an unmistakable call of that species — the ordinary *pheu*, so like the sound of

a man whistling to his dog, as Burrough puts it. This was soon followed, on the part of both birds, by other notes equally characteristic of the Veery, among them the low vibrating or jarring cry. Thus the solution of a mystery that has puzzled me for many years has at length been vouchsafed me.

The birds heard on this occasion became silent before it was broad daylight. I think they were migrants that had arrived and settled among the oaks just before I awoke. That they made *all* the sounds which I attributed to them is beyond question. Equally certain is it that the cries which they gave at first were the same as those which I have heard so often at Lake Umbagog and which evidently represent the night call of the species. As far as I have observed it is uttered by the Veery *only* at night and during migration, but this rule may be subject to exceptions for the corresponding and closely similar call of the Hermit is sometimes given by day, even when the birds are still on their breeding grounds.

Hylocichla minima minima (Lafresnaye)

BICKNELL'S THRUSH

1899, OCT. 2.— Two very small birds, both obviously *bicknelli*, by roadside in Newry.

Entirely apart from these positive identifications of the subspecies, the *species* was occasionally seen and frequently heard migrating at night. The dates are May 22, 1896 – June 7, 1897; Sept. 9, 1888 – Oct. 2, 1890.

1888, SEPT. 10.— As soon as it became dark a heavy flight of Thrushes and Warblers started and continued all night. I heard many *T. aliciae* among the former. Night still, clear, warm.

1897, JUNE 2.— Clouds gathered at sunset and the night closed in dark and foggy with light rain. From 8 to 10 P.M. scarce a minute passed when I did not hear the calls of one or more Gray-cheeked Thrushes. They all seemed to be passing overhead low down. No doubt they were migrating. I heard no other birds of any kind.

1897, JUNE 7.— Near the entrance to the pond (or meadow) a Bicknell's Thrush was calling loudly. I mistook its shrill *peer* for a Red-winged Blackbird's note at first and wondered what a Red-wing could be doing back in the woods among some dense young spruces.

Hylocichla minima aliciae (Baird)

GRAY-CHEEKED THRUSH

Uncommon transient

One collected June 3, 1872, and one well seen Oct. 2, 1890

Hylocichla ustulata swainsoni (Tschudi)

OLIVE-BACKED THRUSH

Very common summer resident, numerous on migration
May 12, 1881–Oct. 11, 1889

1872, JUNE 3–14.— Abundant and generally distributed. The males usually sang from a perch only a few feet above the ground and had a habit of flitting a yard or two in the intervals between each utterance. The song of this species is most nearly like that of Wilson's Thrush; in fact it is essentially the same metallic trill shortened and ending in a few bell-like notes, either with a rising or falling inflection. These final notes give it a slight resemblance to the song of the Hermit Thrush.

1876, MAY 26.— They were in full song this evening although water froze last night to the thickness of window glass, and there is still much snow in the woods.

1876, JUNE 13.— Two nests, one with one, the other with three eggs. The first was built precisely like the nest of a Wood Thrush, on a prong of a dead birch some four feet above the ground. The position of the second was unique — in a hollow scooped in the earth that adhered to the roots of a fallen tree, and perfectly concealed by a portion of the bank which projected above it. The situation of this nest was in every way similar to that usually chosen by the Water Thrush. The bird was sitting and did not start till I placed my hand on the root directly over her head. Two other nests of this Thrush were taken this morning, each with four eggs. In the afternoon I found two more in Grafton, one in a very slender spruce sapling, at least twenty feet above the ground. The bird sat closely, and contrary to the rule returned while I was taking the eggs and repeatedly alighted within four feet of my head, reiterating her liquid *peenk*. This nest contained four eggs.

1896, MAY 26.— A Swainson's Thrush after inspecting our fireplace hopped across the stone flagging between it and the camp passing within 8 ft. of me.

1896, JUNE 2.— Swainson's Thrushes have been numerous ever since we came to Pine Point (May 21) and I believe that on that date the local birds had about all arrived and settled in their breeding stations, but up to today they have been very silent, calling but little and singing so very little that as a rule I have heard only two or three songs (not singers) each day and these about our camp in the early morning and late evening. Today, however, I heard three or four birds singing freely.

1896, JUNE 7.— The Swainson's Thrushes sang through the greater part of the day in the rain. One within twenty yards of camp sang during the entire forenoon with only the briefest intervals of silence and apparently in the same place. There was something peculiarly sad or mournful in the expression of his voice as it came from out the gloomy, water-soaked forest. It moved me strangely and not at all agreeably, recalling old associations with these northern

forests — associations pleasant enough in themselves, but inexpressibly sad as brought back to me by the voice of this Thrush. For an hour or more he interrupted my work and made me utterly wretched. At the time I supposed that this effect was due to the mood I happened to be in, but next day the same bird sang in the same way and with the same effect. The morning and evening singing about our camp has seemed to me delightful and I have looked forward to it through each day.

Although the Swainson's Thrushes had apparently all arrived and taken up their summer quarters in the Pine Point woods before we opened the camp (May 21), they were very silent for the first week. Indeed during the remainder of May I seldom heard more than one or two songs (not singers) in any one day and these at daybreak or in the evening twilight. General and sustained singing began quite abruptly on June 2 after which we heard the song everywhere we went and more or less at all hours. But immediately about our camp the birds were more numerous than anywhere else. They invariably opened the bird concert at daybreak and closed it in the late evening twilight. I never heard one sing during the night. These Umbagog Thrushes seem to me to sing differently from the White Mountain birds. The song has, I think, more variations here. Our camp bird introduced a *wee-e-o-wee-e-o* bar every half minute.

1898, Sept. 20.— At daybreak this morning a small party of Thrushes circled over us and finally pitched down near the tents. The experience of the past four weeks has convinced me that the nocturnal flight calls of the Rose-breasted Grosbeak and the Swainson's Thrush are practically indistinguishable. Early in September I heard Grosbeaks come over Pine Point and alight near my tent gradually changing the night call into one of the diagnostic day notes. One of the Thrushes heard this morning changed the same call in the same way into the unmistakable *t' chur-r-r* of *Turdus swainsoni*.

1909, June 11.— Swainson's Thrushes are quite as numerous in the woods bordering the southern end of the lake as they were thirty-four or more years ago, despite the disappearance of so large a part of their favorite evergreen trees. They are singing now at all hours but most freely at morning and evening, earlier and later than most other birds. I enjoy their songs exceedingly, and am inclined to rate them higher than any other Thrush music except that of the Hermit. There is a peculiar rich, guttural, rolling quality to their voices. Besides the song I hear the *te-cha-a-a-a* (which I cannot certainly distinguish from that of the Veery,) the *peenk* or *pink* and a high-pitched, rather wooden, piping note, given at short regular intervals and not so very unlike the peeping of a Hyla, but less clear and musical. The last-named call is seldom given except at morning and evening.

I have a fine opportunity here to study and compare the songs of the Hermit, the Swainson's and the Wilson's Thrushes. The Swainson's is much the more persistent singer of the three, being often heard at all hours of the day when the other two species are nearly always silent save at morning and evening. Slowly but surely I am coming to the conclusion that the Swainson's is the finest

songster, also. It is undeniable that his best notes do not equal the best that the Hermit can produce, but unlike the Hermit he never attempts what he is not certain of achieving, and he utters no notes which are not musical. Hence his song, as a whole is to my ears the more finished and flawless of the two. Moreover, there is much less difference in *individual* merit among different individuals of Swainson's Thrush than among those of the Hermit. Very many Hermits are decidedly inferior performers, and some are almost trying to listen to. Scarce more than one bird out of an average dozen is a wholly satisfactory musician but he, of course, is worth going far to hear. Swainson's Thrushes, on the other hand, sing so nearly alike that it is difficult to distinguish one from another, and all are delightful and impressive vocalists. Two males regularly answer one another across the placid waters of our little cove at morning and evening, and more or less often throughout the day. Their rich contralto voices fill me with delight, they are so perfectly controlled and modulated and so full of dignity and calm. When the only Veery in the cove joins in the concert, his voice sounds thin and trifling by comparison. On the whole I am inclined to conclude that while the very best songs of the Hermit are undeniably much more beautiful and thrilling than anything that Swainson's Thrush ever achieves, the latter bird is, nevertheless, a better average songster. Certainly I should prefer him to an average Hermit—and infinitely to any Veery — to have near me always.

Hylocichla guttata faxoni Bangs and Penard

Eastern Hermit Thrush

Uncommon summer resident, abundant fall transient
Early May–November 1, 1884

On May 13, 1896, the first day at the Lake that spring, a nest and four eggs of the Hermit Thrush was found, showing that the species must have arrived at least ten days to two weeks earlier.

In point of numbers the Hermit Thrush was a poor second to the Olive-back as a summer resident, with the Veery an equally poor third. In fall, however, it was often one of the commonest land birds for several weeks.

1872, June 3–14.— Not very common and found only in certain localities, chiefly pastures on the steeply sloping hill-sides, especially where young firs and spruces are growing up. The males sang usually just inside the edge of the woods.

1876, June 7.— A nest containing four eggs, in the same pasture where I took one in 1872, was placed on a mound among spruce shrubs not over two

feet high. The locality was an elevated open pasture growing up to young firs and spruces. The nest was about twenty yards from the edge of the woods where the male was singing perhaps fifty yards away. The female was sitting and rose about fifteen feet ahead of me.

1882, Oct. 8–22.— Common. Found everywhere but especially partial to thickets by wood paths and along Cambridge River, places where it never occurs during the breeding season.

1898, Sept. 9.— Just before daybreak I heard the flight call of a Thrush or Grosbeak in the distance. The bird approached rapidly and circled low over the Point as I could tell by the distance of its notes. Finally it alighted in the bushes very near the tent and began making the whining *e-e-e* cry of a Hermit. Up to this time I had not been able to make up my mind whether the bird was a Thrush or Grosbeak; the night calls of the two are really almost indistinguishable I fear.

1896, May 13.— In a thin growth of young poplars and birches with a few young spruces and balsams intermixed, Watrous found a Hermit Thrush's nest containing four fresh eggs. The nest was in the side of a mound covered with last year's brakes most of them broken down, some partially overarching the nest which, however, was so exposed that W. found it without flushing the bird which, indeed, he did not see at all.

1896, May 14.— I took . . . one (photograph) of the nest of the Hermit Thrush which W. found yesterday. The bird was sitting today. I put up my camera within three feet of the nest and she came back to her eggs three or four times, but she flew off the nest each time I returned before I could spring the shutter. After the first failure I built a booth of pine boughs about the camera. This did not deter her from resuming her place, but it also did not secure me sufficiently from her keen eyes.

1897, June 11.— The nest (found by Watrous yesterday with four young) was placed on the top of a little knoll, deeply sunk in the mossy ground and surrounded by a rather scanty growth of yew which was not over 12″ in height. It is unusual to find a Hermit's nest in heavy old growth forest far removed from any opening or clearing.

1896, June 14.— In the spruce-grown pastures near Lakeside the Hermit Thrush — judging by the number of birds seen and especially by that of the nests found (4 with eggs, 1 with broken egg shells) — was almost if not quite as numerous as in the '70's. It was strangely silent, however, during the whole of our stay. There were at least six pairs settled within ½ mile of the hotel but I rarely heard more than 1 singer in any one morning and evening and sometimes not one. We did not find the species at all at the head of the Lake.

1908, July 30.— Two weeks ago Hermits were in full song at all hours of the day. During the past week I have heard them singing freely only at daybreak and in the coming twilight. They appear to be exceptionally numerous here this year. On July 14th I heard at least ten or a dozen in driving to Long's Pond, a distance of two miles. This morning, about 8 o'clock, two birds were

answering one another in shrubbery near the house, one calling *e-e-e-e-e-e* (a somewhat nasal, and high pitched note with rising inflection, the canary note, Faxon calls it) the other *peer* (the night call) and occasionally *tchuck*. At length one of them sang a few round bars.

Turdus migratorius migratorius (Linné)

EASTERN ROBIN

Common summer resident, abundant in fall; reported as occasionally wintering in small numbers.

March 25, 1904–Oct. 30, 1884

The Robin even in the earliest years was an abundant summer resident in the country around Bethel, it was very common in the clearings at the southern end of the Lake, and was also scattered through the primeval forests, chiefly near lumber camps or in places where second growth had sprung up after fires. In the last years it tended to be even commoner in the cleared country, but had abandoned the depths of the forest almost entirely. Large migrating flocks were a feature of every fall.

1873, SEPT. 13.— George Hayward, one of the trappers, tells me that Robins winter here nearly every season in small numbers.

1879, JUNE 16.— Breeds everywhere throughout these forests, often miles from any clearing. Song identical with that of the Massachusetts bird.

1896, MAY 18.— Abundant about the farms and clearings at the lower end of the Lake, but decidedly uncommon at the head of the Lake.

1890, OCT. 6.— Saw fully 100 Robins in one flock, evidently migrants just in from the north. There was a Flicker and a Rusty Blackbird with them.

1890, OCT. 8.— There were about 50 Robins in the woods and along the water's edge. There was much singing among them chiefly by young birds. All this time the snow was falling thick and fast.

Sialia sialis sialis ((Linné)

EASTERN BLUEBIRD

Uncommon summer resident, of regular occurrence in flocks in fall

April–October 22, 1886

The Bluebird formerly bred not uncommonly throughout the farming country on Upton Hill and more commonly southward

around Bethel and Newry. It bred very sparingly in clearings about the wooded slopes of the southern half of the Lake, shunning the depths of the forest, and nested in hollow stubs and Martin boxes. It will be recalled that the Bluebird had a disastrous winter in the south in 1894. In 1896 Mr. Brewster failed to find a single Bluebird in the entire region, including Bethel and Colebrook, N. H. In 1897 one pair was found at Lakeside, in 1903 it was again fairly common around Bethel and Colebrook, and in 1907 it was at the lower end of the Lake in normal numbers.

In fall the Bluebird was regularly recorded throughout the Lake Umbagog region, but chiefly by the mellow calls of flocks flying by overhead.

SUPPLEMENT

1. *Mr. Brewster's Visits to the Lake Umbagog Region*

In any faunal report, the amount of time devoted to the field work is always of importance. Particular interest attaches to Mr. Brewster's visits to Lake Umbagog, as in the earlier years especially, it took considerable trouble to get there, and careful planning and arrangements made well in advance to remain there with reasonable comfort for any length of time. It was consequently a very different proposition indeed from the present situation, where excellent motor roads enable the visitor from Boston to arrive in one long day's journey by auto.

It will be noted that over a spread of thirty-eight years, there were five years when Mr. Brewster did not visit Lake Umbagog. He was also never there in April or early May. The winter visits did not begin until 1900. But little field work was done in most of them, as they were visits for his health, and most of the time was spent quietly in the sanitarium of his friend, Dr. Gehring, at Bethel in an effort to improve his health.

1871, May 30–June 10.— Chiefly collecting and nest hunting.
1872, June 2–15.— Chiefly collecting and nest hunting.
1873, June 13–28; July 18–September 24. — Special attention to moults and plumages.
1874, July 24–September 19.— Special attention to moults and plumages.
1875, No visit.
1876, May 25–June 24.— Active nest hunting.
1877–78, No visit.
1879, May 22–June 24.— Active nest hunting.
1880, May 15–June 23; September 1–21.— Active nest hunting.
1881, May 12–30.
1882, October 7–22.
1883, October 17–November 1.
1884, October 10–November 2.
1885, October 8–28.
1886, October 12–26.
1887, September 1–30.
1888, September 1–October 12.
1889, September 3–October 30.
1890, September 20–October 30.
1891–2. No visit.
1893, September 21–October 16.
1894, August 24–October 5.
1895, August 29–October 1.

1896, May 11–June 14; August 8–October 7; nest hunting and photography.
1897, May 10–June 15; September 2–September 30; nest hunting and photography.
1898, August 21–September 30.
1899, September 30–October 2.
1900, September 2–25; December 7–31, at Bethel.
1901, January 1–March 7, at Bethel.
1902, January 4–7, at Bethel; September 7–30.
1903, June 3–15; December 11–17, at Bethel.
1904, February 13–March 26, at Bethel; September 8–November 17.
1905, July 9–September 8.
1906, June 12–14, at Bethel.
1907, January 19–31, at Bethel; June 13–August 15.
1908, August 10, at Bethel.
1909, June 2–23.

2. *Gazeteer of Localities*

Present day readers are apt to forget that Mr. Brewster's "Lake Umbagog Region of Maine" was more than half in the State of New Hampshire. Previously published records from Lake Umbagog have been variously taken to belong to one state or another, according to the interest of the author. Mr. Brewster was not interested apparently in this aspect of the subject, and many records of interest in the parts written by him are unexplained geographically. He loved Lake Umbagog intensely, but did not follow the avifauna of New Hampshire and Maine with the concentrated attention he devoted to Massachusetts. Throughout his text free use is made of numerous local place names, many of them now obsolete or forgotten. I am much indebted to Mr. Henry M. Spelman and to Mr. R. A. Gilbert, for years Mr. Brewster's assistant, for help in locating many of these. Towns and villages to be found on every atlas map are not listed beyond.

Lake Umbagog is on the boundary between the States of New Hampshire and Maine. It runs almost due north and south, but curves to the east at each end. These curves and the east shore of the Lake are in Maine, most of the Lake and all the islands are, consequently, in New Hampshire. In earlier decades the Lake was reached from the south (in Maine) by the old stage road from Bethel through Grafton Notch to Upton. The Cambridge River flows into the extreme southeast corner of the Lake from the east. The outlet of the Lake is in the extreme northwest corner in New Hampshire and is the start of the Androscoggin River, into which a short distance from the Lake empties

the Megalloway River, coming in from the north and east. At these opposite corners of the Lake were the marshes and flats, where Mr. Brewster collected many ducks and shore birds, and it consequently makes considerable difference as regards State records as to the exact locality.

Abbott's Farm and Mill — in Upton, Maine.

B Brook, and Point — about half way up the west shore of the Lake. B. Brook flows out of B. Pond.

B Meadow — in Maine just above the forks of the Cambridge River.

B Point — about a mile north of Lakeside, New Hampshire.

B Pond — in the wilderness east of the Lake, reached by a trail from Tyler's Bog, and by canoe up B. Brook.

Birch Point — near Lakeside, New Hampshire.

Bottle Brook Pond — close to the left bank of the lower Megalloway River, about seven miles above its mouth.

Brown Cove and Opening — near Lakeside, New Hampshire.

C Pond — in Maine, at the head of the Dead Cambridge River.

Cambridge Marshes and River — extreme southeast corner of Lake in Maine.

Curtis Meadow—on the Androscoggin River, due west of Sweat's Meadow.

Ferrin's Farm — one of the farms in Cambridge, New Hampshire.

Dr. Gehring's Orchard — in Bethel, Maine.

Glen Woods — in Bethel, Maine.

Great Island — a large island at the south end of the Lake, in New Hampshire.

"Lake House" — an inn in Upton, Maine, at the southeast corner of the Lake, just north of the outlet of the Cambridge River.

Lakeside — a village in New Hampshire at the south end of the Lake.

Leonard's Pond - just north of the junction of the Megalloway River and the Androscoggin.

Mason's Woods — a tract in Maine east of Pine Point.

Mettalluc Pond — a pond east of the "Narrows" of Richardson Lake in Maine.

Moll's Rock — a favorite camping place just south of the "Outlet."

Moose Point — in New Hampshire, directly opposite Pine Point.

"Outlet" — west central side of Lake in New Hampshire, where the Androscoggin River flows out of the Lake.

Pearly White Farm — in Upton, Maine.

Peaslee's — in Upton, Maine.

Pine Hill Pond — in New Hampshire; reached by canoe from the Megalloway River.

Pine Point — about eleven miles up the Lake on the eastern shore in Maine; site of Mr. Brewster's camp and boat house.

"Point" or "The Point" — Pine Point is always meant.
Poplar Tavern — on stage road between Bethel and Upton, Maine, in the town of Newry.
Pulpit Rock — on Megalloway River in New Hampshire.
Rapid River — the river connecting Umbagog with Richardson Lake to the east.
Richardson Lake — the next lake of the Rangeley Lakes chain east of Umbagog, in Maine.
Sargent Clearing, Cove, Farm — in Cambridge, New Hampshire.
Skunk Hollow — outskirts of Bethel, Maine.
Spelman's Point — part of Pine Point.
Staple's Farm — northwest of Great Island, in New Hampshire.
Stone Path — a trail on Pine Point.
Strickland's Farm — in Upton, Maine.
Sunday Cove — extreme northeast corner of Lake above Pine Point, in Maine.
Sweat Cove, in New Hampshire west of the northern end of Great Island.
Sweat Meadow — bordering one of the lagoons extending back from the Androscoggin River, between Errol Dam and the mouth of the Megalloway River.
Tyler Bog — an extensive bog in Maine, east of the Lake and a half mile due north of the "Lake House."
Tyler Cove — on the east side of the Lake in Maine.
Tyler Road — an old logging road from the Lake House to Tyler Bog and Cove; another logging road runs from Tyler Bog northeast to B Pond.
Whale's Back Cove — two miles north of the "Outlet."

3. *Recent Field Work at Lake Umbagog*

It is just thirty years since Mr. Brewster's active field work ceased at Lake Umbagog. The preceding forty years saw considerable change in the status of various species, both transient and summer resident, inevitably chiefly in terms of their decrease. The question arises what further changes, if any, have taken place in the past thirty years. Some answer to this question is fortunately possible. Mr. George L. Perry of the Nuttall Ornithological Club began visiting the region in 1930, often with friends, other members of the Club. He has most kindly given me a complete abstract of his observations for use in this connection, and has taken endless pains in answering questions and looking up points of interest to me. His assistance is here gratefully acknowledged.

Mr. Perry's visits to the region were as follows:

1930, July 7–11; October 6 and 7.
1931, June 12–19; October 4–7.

1932, June 13–23.
1933, June 14–22.
1936, June 10–15; September 15–18.

His headquarters were at the "Lake House," the proprietor of which was Mr. True A. Durkee, formerly a guide and collector for Mr. John E. Thayer, and a man who knew Mr. Brewster and his guides. From him, naturally enough, Mr. Perry received much information of interest, and assistance in reaching good bird country. Perhaps the best news is that the lapse of thirty years has seen no essential changes for the worse. As a sportsmans' paradise Lake Umbagog fell off so sharply in the last decade of Mr. Brewster's period, that this type of activity has now greatly decreased, and the Lake steamer that formerly ran has gone out of business. There have also been no extensive lumbering operations. It should be noted, however, that Mr. Perry did not visit any of the wilder areas at the upper end of the Lake, or the tributary rivers.

Below in systematic order, will be found a list of those species the status of which in the region at the present time, is worthy of note. Three were unrecorded by Mr. Brewster.

Loon.— Still a summer resident. No evidence of any further decrease.

Herring Gull.— A "very few" regularly seen on the Lake. Apparently, therefore, still nesting nearby.

Double-crested Cormorant.— One seen on the Lake September 17, 1936, and reported to have been present all summer. A straggler for which this is the only record.

American Merganser.— Still nesting in small numbers.

Hooded Merganser.— Now unreported as breeding at the south end of the Lake at least.

Black Duck.— Still nesting in small numbers.

Wood Duck.— Probably locally extinct in 1912. One female seen over Tyler Bog in June, 1932.

Bittern.— Still locally extinct at the south end of the Lake.

Great Blue Heron.— Still nesting in Tyler Bog until 1935, when this site was abandoned.

Woodcock.— Still a not uncommon summer resident.

Spruce Grouse.— Not as common as formerly, but occasionally seen in low spruce woods or arbor-vitae swamps.

Marsh Hawk.— Unrecorded during the breeding season.

Cooper's Hawk.— Unrecorded during the breeding season.

Red-tailed Hawk.— Unrecorded during the breeding season.

Red-shouldered Hawk.— Now a regular summer resident at the southern end of the Lake. Formerly casual, first known to breed in 1904 at Bethel.

Broad-winged Hawk.— Still common.

Bald Eagle.— Seen frequently, always adult. Three seen together over Tyler Bog June 21, 1932.

Fish Hawk.— Frequently seen and breeds. A nest in Tyler Bog was abandoned in 1932.

American Three-toed Woodpecker.— Recorded occasionally in recent years by Mr. Durkee, chiefly in spring and fall.

Northern Pleated Woodpecker.— Now more frequent than formerly, and tolerant of civilization.

Whippoorwill.— Unrecorded.

Crested Flycatcher.— Still present in very small numbers.

Phoebe.— Now a common instead of rare summer resident.

Starling.— Now present, but not very common. Unknown in Mr. Brewster's time.

Pine Grosbeak.— Unrecorded.

House Sparrow.— Now fairly common at Lake Umbagog.

Red Crossbill. — Small flocks on June 21, 1932 and June 13, 1936.

White-winged Crossbill.— Recorded July 9–11, 1930, and June 22, 1932.

Vesper Sparrow.— Not found at all by Mr. Perry.

Rose-breasted Grosbeak.— Entirely absent.

Indigo Bunting.— Entirely absent.

Scarlet Tanager.— Obvious increase, as Mr. Perry recorded it occasionally.

Purple Martin.— Entirely gone.

Bank Swallow.— Unrecorded.

Northern Shrike.— One on the very early date of October 7, 1930.

Philadelphia Vireo.— Unrecorded.

Warbling Vireo.— Completely gone from the region.

Black and White Warbler.— Now a common summer resident. Marked increase.

Nashville Warbler.— Now a very common summer resident. Very marked increase.

Tennessee Warbler.— Has apparently returned to the region, as Mr. Perry found it along the trails north of Tyler Bog in June 1932 and again in 1933. Not found in 1936.

Cape May Warbler.— Once more breeding in the region. Found by Mr. Perry within a quarter-mile of the Lake House in July 1930, and again in June 1932 and 1933. Not found in 1936.
Black-throated Blue Warbler.— Now rather uncommon.
Chestnut-sided Warbler.— Now fairly common. Marked increase.
Bay-breasted Warbler.— "Rather common."
Black-throated Green Warbler.— Now common. Slight increase.
Western Palm Warbler.— Recorded October 7, 1931.
Oven-bird.— Now common. Slight increase.
Catbird.— Now common. Marked increase.
House Wren.— Now present near the Lake House and in Upton.
Short-billed Marsh Wren.— Casual straggler; one in a grassy meadow southeast of Upton, July 7, 1930.
Brown Creeper.— Common breeder once more. Marked increase.
White-breasted Nuthatch.— Recorded in fall only.
Ruby-crowned Kinglet.— On June 15, 1932, a male in full song was noted in Tyler Bog.

4. *Summary of Outstanding Ornithological Results*

In marked contrast to his Memoir on the Birds of the Cambridge Region, Mr. Brewster wholly omitted the comparative method in writing up the avifauna of Lake Umbagog. His records and data were almost never contrasted with any other published information on the birds of Maine or New Hampshire, and consequently there is no clue as to whether most of his local discoveries and findings were in any way novel, or altered the known status of the several species over a larger area. In 1908 Knight's excellent treatise, the Birds of Maine, appeared, with its special paragraph under each species of its status by counties. It is apparent that as regards Oxford and Franklin Counties, those two in which lie the Umbagog Region, Knight was entirely unaware of Brewster's field work, nor did the latter gentleman appear to take any interest in Maine ornithology or to relate his findings to this larger area or that of the adjacent State of New Hampshire. Thus the detailed journal accounts of his records of the Western Palm Warbler do not provide the slightest grounds for supposing that he was aware that his records were the only ones for the State of Maine. In many cases, water birds particularly, where his records are of special interest, there is no clue as to the State in which they were observed or collected.

Readers of the present day, who are likely to be much more interested in such points, are strongly urged to consult the gazeteer of

localities. This information, when checked with the detailed account of the record in the text, will usually disclose to which State the record belongs. It is hoped that these remarks will terminate the assumptions of the past that all unusual records belong to both States!

1. Herring Gull.— First definite breeding record for New Hampshire.
2. Arctic Tern.— Only records for New Hampshire.
3. Black Tern.— First inland records for Maine.
4. European Widgeon.— First record for New Hampshire.
5. Baldpate.— First inland records for New Hampshire.
6. Redhead.— First records for New Hampshire.
7. Old-squaw.— First inland records for New Hampshire.
8. Wilson's Phalarope.—Only two records for Maine in Knight; Mr. Brewster supplies two more.
9. Dowitcher.— Only inland record for New Hampshire.
10. Baird's Sandpiper.— The early records by Mr. Brewster, published by Allen in his Birds of New Hampshire, (1908) are all *Maine* records. Other later ones, however, from 1894 on are New Hampshire records.
11. Red-backed Sandpiper.— First inland records for both States.
12. Sanderling.— First inland records for New Hampshire; regarded by Knight as "exceedingly rare" inland.
13. Black-bellied Plover.— First inland records for New Hampshire.
14. Turnstone.— First records for New Hampshire, and the only inland ones as yet.
15. Long-eared Owl.— Not recorded by Allen (1908) from north of the White Mts. in New Hampshire.
16. Raven.— Noteworthy New Hampshire records.
17. Orange-crowned Warbler.— Only one other record for New Hampshire and none for Maine.
18. Western Palm Warbler.— First records for Maine.

Entirely apart from these more notable records, no such thorough work on the more usual birds has ever been done in New Hampshire north of the White Mountains, or in the interior of Western Maine. The northward infiltration of Transition Zone species into the heart of the Canadian Zone is of particular interest, and has been increasing on the whole in more recent decades. The occurrence inland in some numbers and regularity of a long list of water birds, usually thought of as coastal or marine, was previously undreamed of. The total list of named forms for the region is 226.

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